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FIJI.

COUNCIL PAPER, No. 29. F. 48/4/19.

ANNUAL

MEDICAL AND HEALTH REPORT

FOR THE YEAR

1934.

Laid on the Table, 1 *November*, 1935.

BY AUTHORITY: J. J. McHUGH, GOVERNMENT PRINTER, SUVA.—1935.

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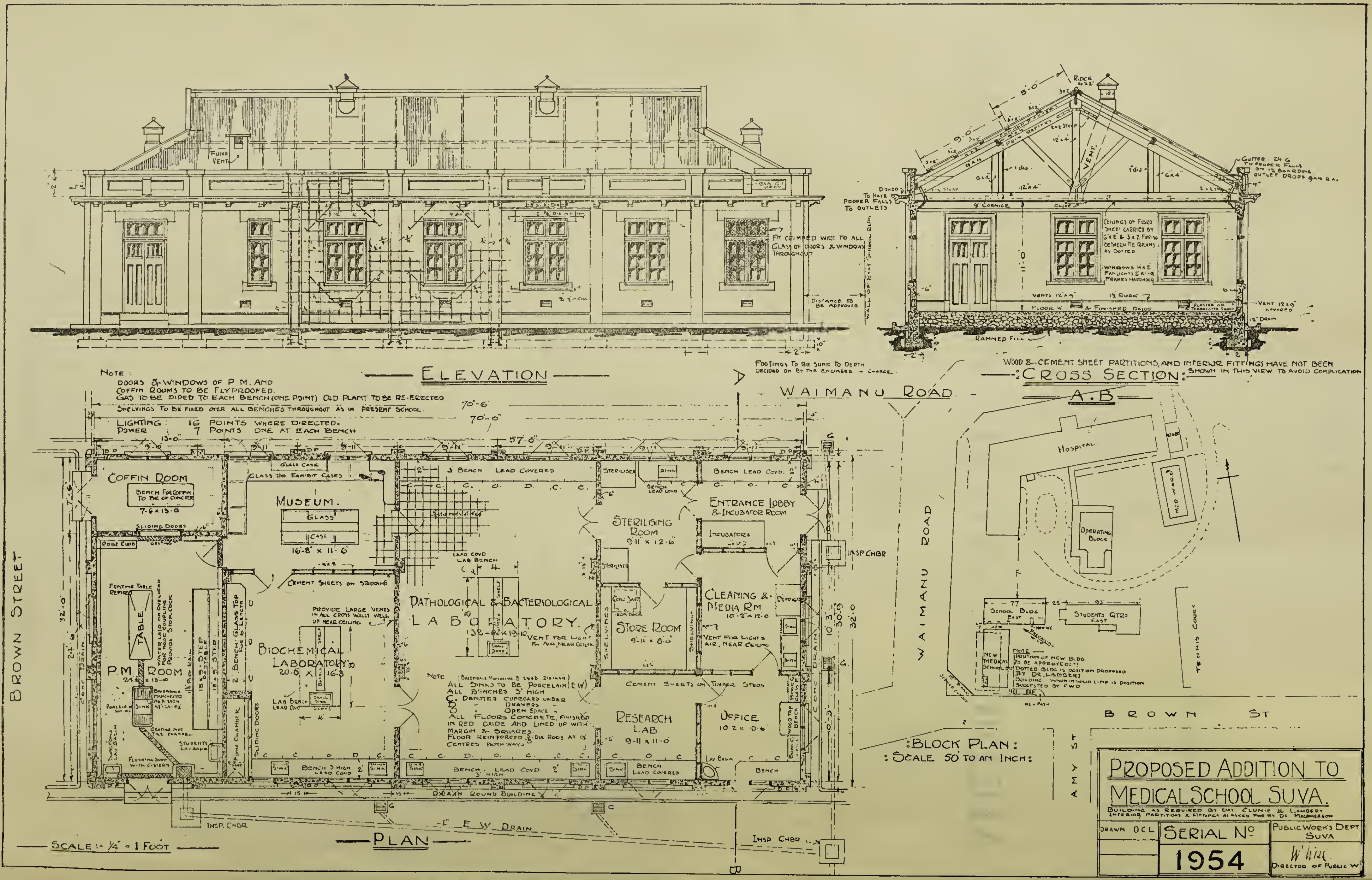


NOTE:
DOORS & WINDOWS OF P M. AND
COFFIN ROOMS TO BE FLYPROOFED.
GAS TO BE PIPED TO EACH BENCH (ONE POINT) OLD PLANT TO BE RE-ERECTED
SHELVINGS TO BE FIXED OVER ALL BENCHES THROUGHOUT AS IN PRESENT SCHOOL.
LIGHTING : 16 POINTS WHERE DIRECTED.
POWER : 7 POINTS ONE AT EACH BENCH

NOTE (BAXENDALE MANCHESTER B 2438 21x14x9)
ALL SINKS TO BE PORCELAIN (EW)
ALL BENCHES 3' HIGH
C. DENOTES CUPBOARD UNDER
D " DRAWERS "
O " OPEN SPACE "
ALL FLOORS CONCRETE, FINISHED
IN RED OXIDE AND LINED UP WITH
MARGIN & SQUARES.
FLOOR REINFORCED 3/8-DIA RODS AT 9'
CENTRES BOTH WAYS

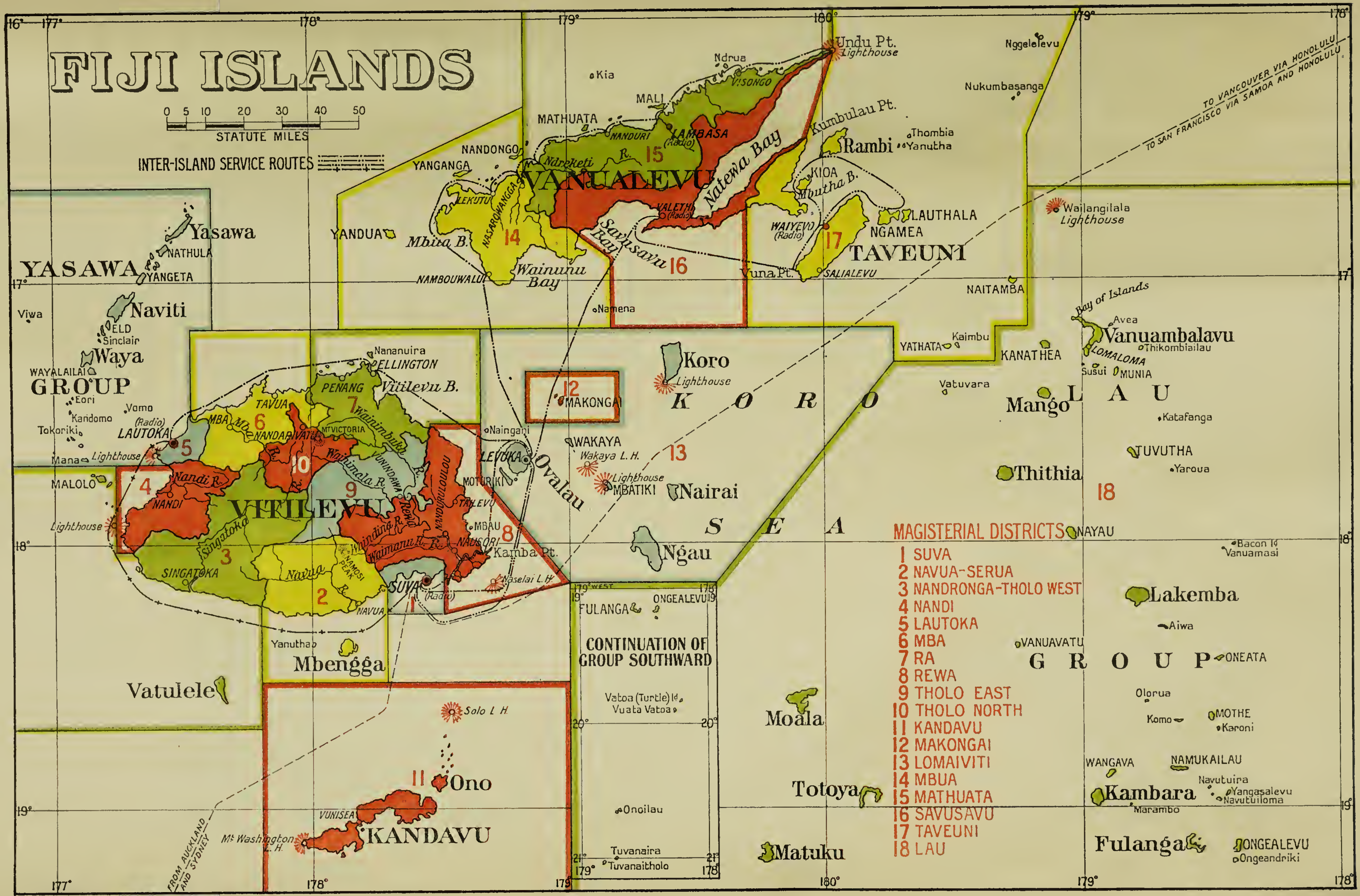
WOOD & CEMENT SHEET PARTITIONS, AND INTERIOR FITTINGS HAVE NOT BEEN SHOWN IN THIS VIEW TO AVOID COMPLICATION

NOTE —
POSITION OF NEW BLDG
TO BE APPROVED: ??
DOTTED BLDG IS POSITION PROPOSED
BY DR LAMBERT.
BUILDING SHOWN IN SOLID LINE IS POSITION
SUGGESTED BY PWD

PROPOSED ADDITION TO
MEDICAL SCHOOL SUVA.
BUILDING AS REQUIRED BY DRS CLUNIE & LAMBERT
INTERIOR PARTITIONS & FITTINGS AS ASKED FOR BY DR MACPHERSON

DRAWN OCL
SERIAL No
1954
PUBLIC WORKS DEPT
SUVA
DIRECTOR OF PUBLIC W

FIJI ISLANDS



Lands Department, Suva.

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MAP OF FIJI.

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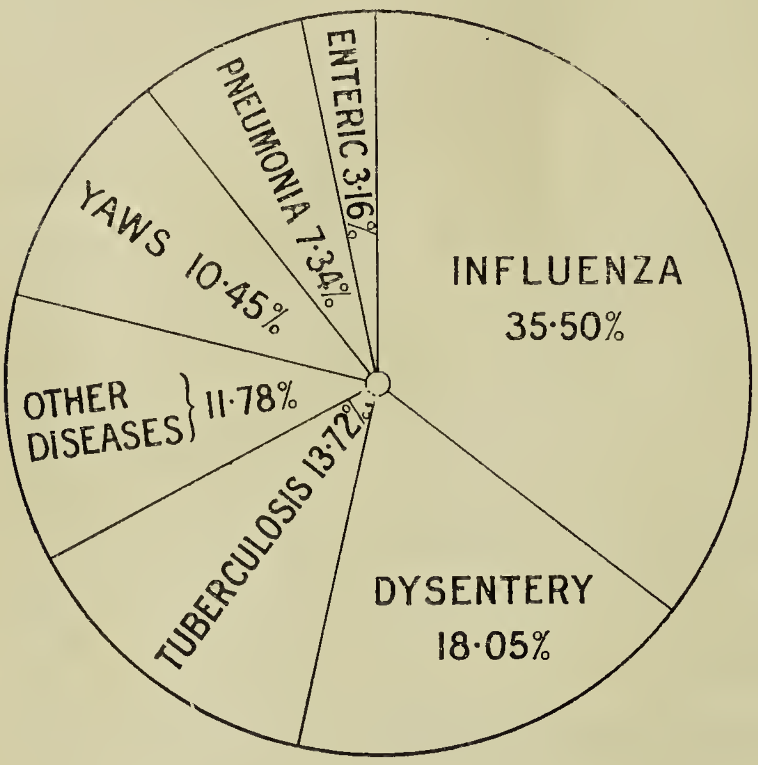
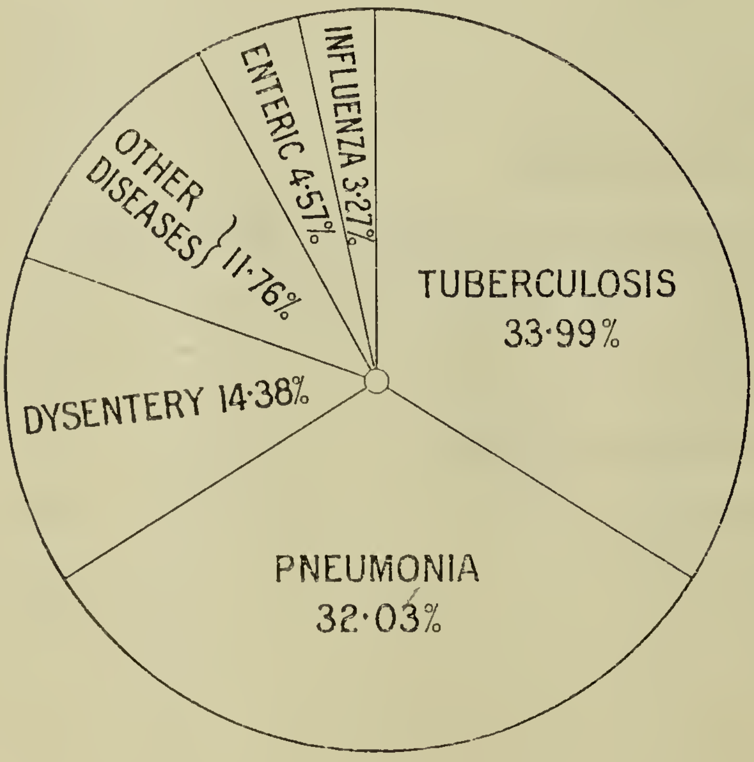
The Diagrams show the relative incidence of different diseases causing admission to, and deaths in, Hospitals of the Colony during 1934.

INFECTIVE DISEASES.

TOTAL INCIDENCE, 2,056.

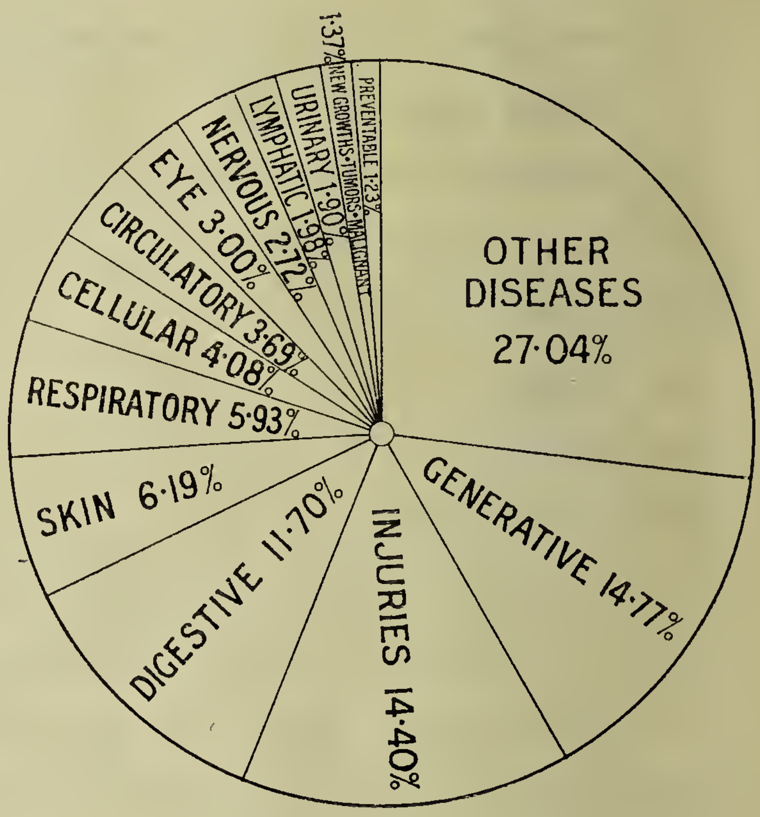


TOTAL DEATHS, 153.

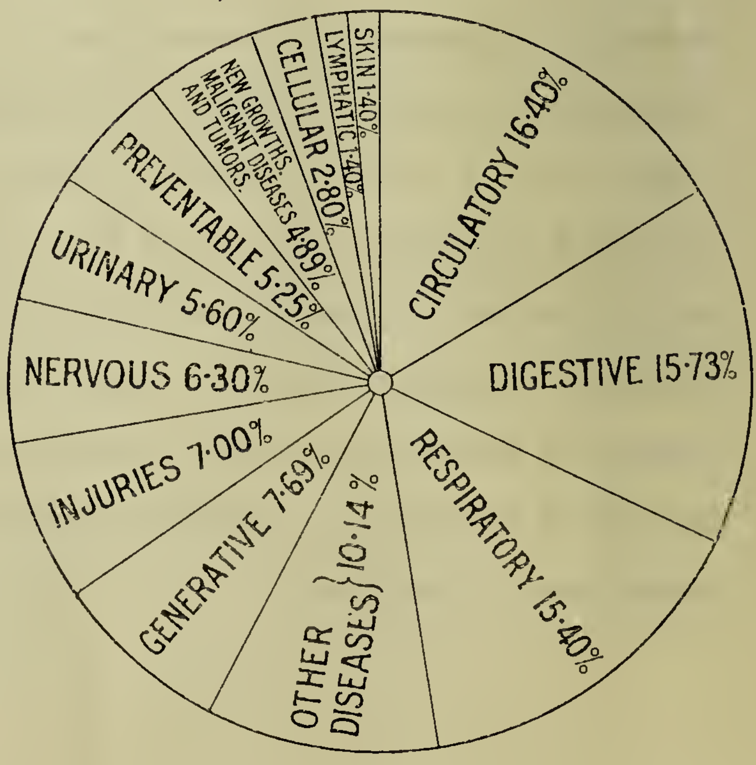


GENERAL SYSTEMIC AND PREVENTABLE DISEASES.

TOTAL CASES, 6,494.



TOTAL DEATHS, 286.



TEACHING STAFF—CENTRAL MEDICAL SCHOOL, SUVA.

ACTING TUTOR AND STUDENTS—CENTRAL MEDICAL SCHOOL.

1935.

LEGISLATIVE COUNCIL,
FIJI.

COUNCIL PAPER, No. 29.

Medical Department

(Annual Medical Report for the year ending the 31st December, 1934.)

Laid on the Table, 1 November, 1935.

The Chief Medical Officer to The Hon. the Acting Colonial Secretary.
Medical Department,

Sir,

I have the honour to submit, for the information of His Excellency the Governor, and for transmission to the Right Honourable the Secretary of State, the Medical Report on the Health and Sanitary conditions prevailing in the Colony of Fiji for the year 1934, together with the returns appended thereto.

I have, &c.,
A. H. B. PEARCE,
Chief Medical Officer.

I.—ADMINISTRATION.

STAFF.

Appointments.—Tamaibeka Savenaca, Third Class Clerk, 1st January; Miss M. M. Rial, Sister, Colonial War Memorial Hospital, 10th January; Hon. V. W. T. McGusty, Acting Chief Medical Officer, 22nd February; Miss E. F. Hughes, Acting Matron, Colonial War Memorial Hospital, 20th March; Rev. Sister Mary Fidelis, Nursing Sister, Makogai Leper Hospital, 10th April; Miss E. F. Hughes, Assistant Matron, Colonial War Memorial Hospital, 1st May; J. Beveridge, Caretaker, Makaluva Quarantine Station, 1st June; Dr. R. W. D. Maxwell, Assistant Medical Superintendent, Colonial War Memorial Hospital, 25th August; Miss A. S. Robinson, Probationer Nurse, Colonial War Memorial Hospital, 18th September; Miss J. McRae, Probationer Nurse, Colonial War Memorial Hospital, 24th September; Rev. Sister Mary Hilda, Nursing Sister ,Makogai Leper Hospital, 20th October; D. P. Cantlon, Acting Steward and Clerk, Colonial War Memorial Hospital, 25th October; Miss L. M. Lea, Matron, Colonial War Memorial Hospital, 13th November; Miss E. F. Jacomb, Probationer Nurse, Colonial War Memorial Hospital, 11th December; Miss C. B. Little, Temporary Sister, Lautoka Hospital, 19th December; Miss L. Dick, Temporary Sister, Colonial War Memorial Hospital, 21st December.

Resignations.—Rev. Sister Mary Celine, Nursing Sister, Makogai Leper Hospital, 1st July; Rev. Sister Mary Benoit, Nursing Sister, Makogai Leper Hospital, 1st September; Levani Bai Cavu, Fourth Class Clerk, 1st October; Mrs. V. M. Davidson, Sister, Lautoka Hospital, 19th December.

Retirements.—Miss H. Pankhurst, Matron, Colonial War Memorial Hospital, 20th June.

Transfer.—Dr. E. A. Neff, District Medical Officer, to post of Senior Medical Officer, Cyprus, 24th November.

B—ORDINANCES AFFECTING PUBLIC HEALTH AND THE MEDICAL SERVICES ENACTED DURING THE YEAR.

The following Proclamations, Regulations and By-laws were passed during the year:—

Proclamations :—

No. 2 of 1934—Drugs and Poisons Ordinance (No. 19 of 1926) shall apply to Ethylmorphine (Dionin) Methylmorphine (Codeine) and their respective salts and any solution or dilution containing Ethylmorphine and Methylmorphine or their respective salts.

Regulations :—

Regulations made under the Drugs and Poisons Ordinance 1926 amending regulation 3 by insertion of the words " Government Veterinary Surgeons."
Regulations made under the Public Hospitals Ordinance 1884 amending the scale of X-ray fees.
Regulations made under the Pure Food Ordinance 1925 amending regulations relating to unsweetened condensed milk.
Regulations made under the Pure Food Ordinance 1925 amending regulations relating to milk.
Regulations made under the Quarantine Ordinance 1928 amending regulations to the quarantining of passengers.

By-laws :—

Suva Municipal Regulation of barbers shops By-laws.
Colo East Dairy milk and cream By-laws.
By-laws dealing with Tuberculosis in dairy herds in the Rural Sanitary District of Suva.
Tailevu dairy milk and cream By-laws.
Ra Quorum By-laws.
Ra cattle and swine By-laws.
Ra Rural Dwelling houses By-laws.
Ra dustbins By-laws.
Macuata Privies By-laws.

C—FINANCIAL.

The total expenditure under the two heads, Medical and Hospital, was:—

	1932.	1933.	1934.
Personal emoluments	£38,766 12 0	£38,510 1 1	£38,974 10 2
Other charges ..	31,172 5 0	32,517 12 2	35,505 19 10
Totals ..	£69,938 17 0	£71,027 13 3	£74,480 10 0

The revenue creditable to the Medical Department was:—1932, £13,460 14s. 7d.; 1933, £9,429 7s. 5d.; 1934, £9,383 19s. 3d. The decrease in revenue in 1933 was due to the remission of native contributions to hospitals and native medical services which amounted to £4,700 annually.

The daily cost per patient at the Medical Institutions of the Colony in 1932 and 1933 was respectively:—

	1933. s.	1933. d.	1934. s.	1934. d.
Colonial War Memorial Hospital . ..	5	11·5	6	0·6
Lautoka Hospital	3	8·4	3	9·2
Levuka Hospital	4	3·2	6	5
Labasa Hospital	3	5·1	4	5·6
Public Lunatic Asylum	2	1·8	2	3·2
Central Leper Hospital	1	6·8	1	7·5
Provincial Hospitals	1	7·5	1	4·8
Nadi	1	7	3	5·1
Penang	3	3·9	3	8·8

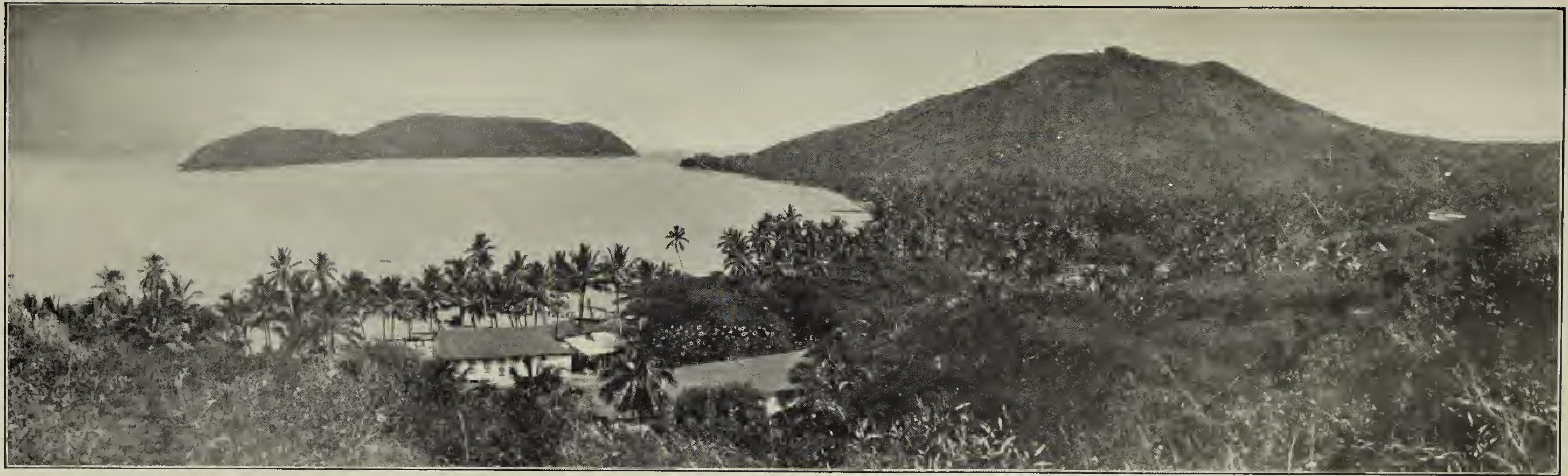
Further details are given in Appendixes A to C.

The Revenue of the Colony for 1934 amounted to £782,913 13s. 2d. Of this sum, £74,480 10s. 0d. was expended on Medical Services. The Revenue received amounted to £9,383 19s. 3d. The net cost, therefore, was £65,096 10s. 9d., or 8·3 per cent. of the total revenue.

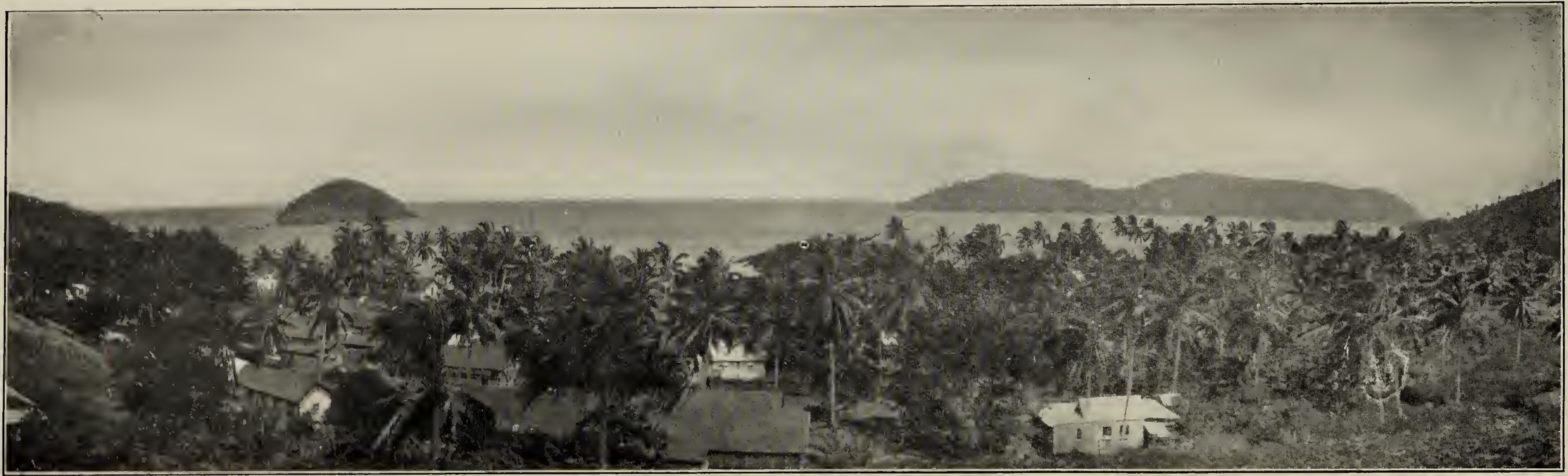
II.—PUBLIC HEALTH.

I.—GENERAL REMARKS.

The general health of the Colony was, for the first three quarters of the year, exceptionally good. During the last quarter, a very mild type of influenza was epidemic. By far the greater number of these cases occurred among the Fijians, who provided 74 per cent. of the cases reported. The mass inoculation of the population with T.A.B. is being continued with most satisfactory results. The total typhoid incidence for the Colony was 58 cases as compared with 196 cases for 1933. During the year 9,000 innoculations were given. Of the 58 cases reported for the whole Colony, only 4 cases were reported from the Suva district. It is extremely gratifying to all concerned to note that the typhoid incidence is steadily decreasing year by year especially for the Suva Urban and rural areas. This is without doubt due to our intensive sanitary campaign in these areas. There was a definite exacerbation in the dysentery returns for 1934, as compared with 1933. The actual number of cases notified to the Health Department for the year was 399, an increase of 150 over the previous year. Only 35 dysentery cases were reported for the Suva district. The type of the disease was, with the exception of 4 cases of amœbic dysentery, either Flexner or Shiga. There is no better index of the sanitary conditions prevailing in a district than the number of cases of dysentery reported. In Suva area, both urban and rural, where sanitary conditions are being steadily improved, the dysentery incidence is yearly increasing. During last year, of the total reported, only 8 per cent. came from these areas, the remaining from Lautoka, Ba and Nadi. The sanitary conditions in these districts leave much to be desired, but it is hoped that the sanitation campaign will, in time, be extended to them.



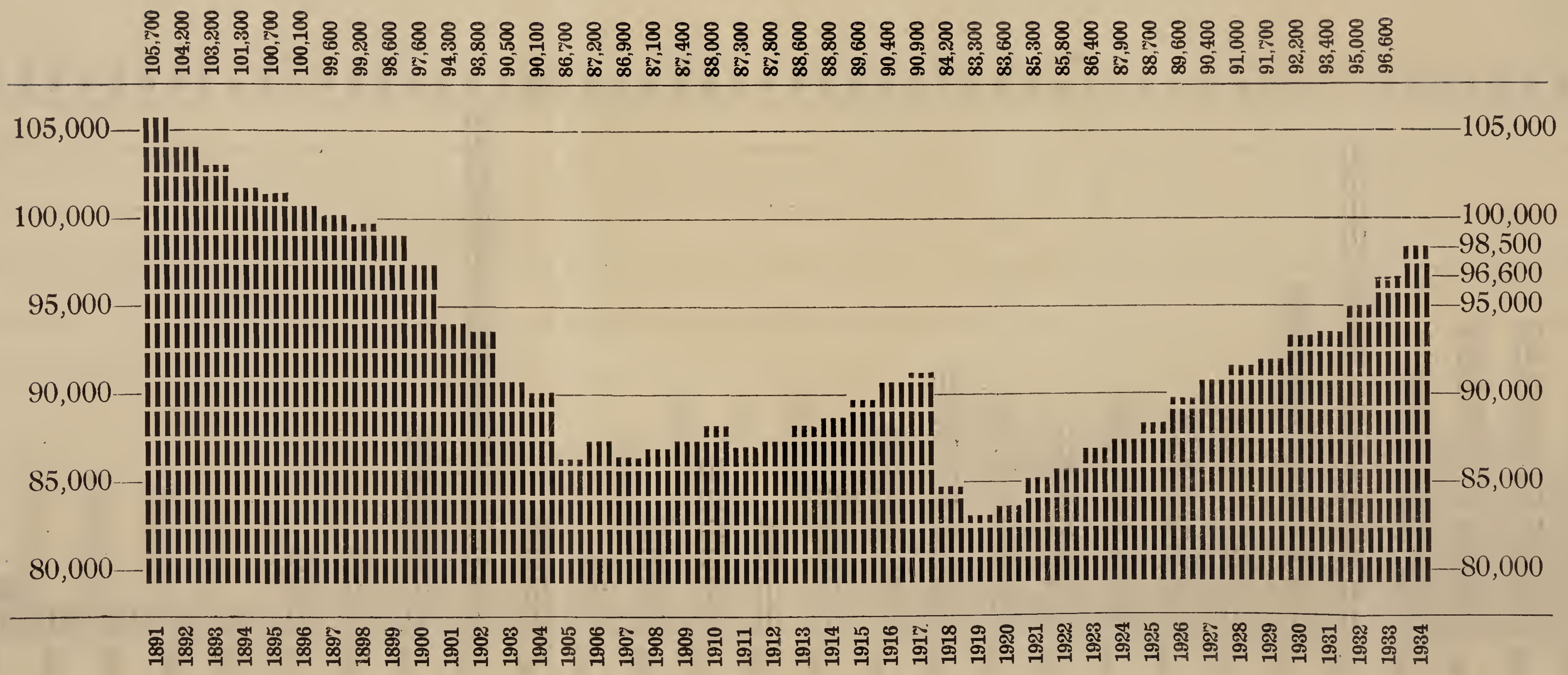
CENTRAL LEPER HOSPITAL, MAKOGAI.



CENTRAL LEPER HOSPITAL, MAKOGAI, DALICE BAY, MOKODRANGA IN DISTANCE.

GRAPH A.

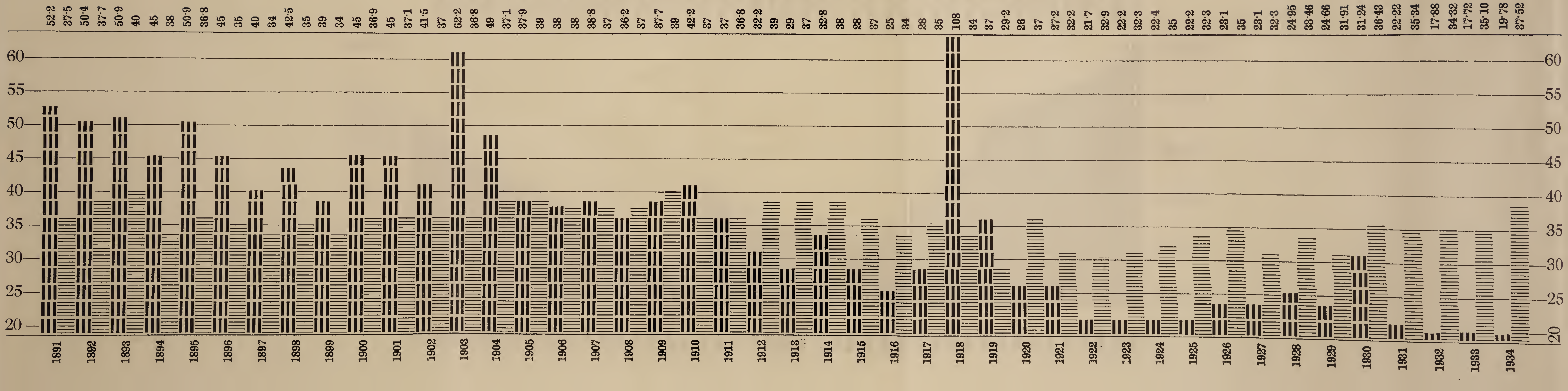
SHOWING THE DECREASE AND INCREASE IN THE FIJIAN RACE FOR THE LAST 44 YEARS.



GRAPH B.

SHOWING THE DEATH AND BIRTH RATE IN THE FIJIAN RACE FOR THE LAST 44 YEARS.

Note.—The thick perpendicular lines indicate the rise and fall in the death-rate; the thin horizontal lines show the rise and fall in the birth-rate.



Township Boards have been proclaimed under Ordinance No. 44 of 1928 at Namoli in Lautoka District, and at Nausori in the Rewa district. It is hoped that township boards will also be proclaimed at Ba, Nadi and Ra. The powers invested in these boards are very extensive, and should go a long way in improving sanitary services.

The total population at the end of December, 1934, was 197,449—including Fijians, 98,479; Indians, 83,289; and Europeans, 4,763. The total death rate was 15·47 per thousand as compared with 14·73 in 1933. The Fijian death rate was 19·78, an increase of 2·06 over the previous year due to an epidemic of whooping cough. The mortality of the Indian population was 10·15, showing a decrease of 1·22. The birth rate of the Colony was 36·44 per thousand, an increase of ·39 over the year 1933.

A co-operative soil sanitation campaign between the Colony of Fiji and the Rockefeller Foundation was commenced three years ago, and has just been completed. This campaign has been the outcome of the various efforts against hookworm disease, and other soil pollution diseases. In pre-European days the Fijian had no latrine—he simply wandered away into the bush. As British control became more complete in the Colony of Fiji, communal latrines were introduced. These were, however, found to be unsatisfactory as no one in the village was found to be responsible for their cleanliness. Meanwhile the East Indians had arrived as indentured servants of the planters. While they lived on their masters estates a fair amount of attention was paid to sanitation, but as these men passed out of their indenture and began to settle as free Indians, and their numbers increased, the conditions around their homes became deplorable. They were allowed to huddle together on low-lying swampy ground in a small space of a few yards which contained their house, latrine and shallow well.

The latrines were of a most primitive character and with the heavy rainfall, the bacterial flora of the well was identical with that of the latrine. Under these conditions annual epidemics of typhoid were added to annual epidemics of dysentery and an increasing burden of hookworm infection.

In 1928 and 1929, Dr. Heiser of the Rockefeller Foundation visited Fiji, and convinced the Government that a trial of the bore-hole latrine system should be made. In conjunction with the local work of the Foundation, several hundred trial holes were bored in the Nausori area, and experimental slabs were made to cover these holes. During 1930 and 1931, the Health Department installed one for every home in rural Suva, and several hundred in Navua. The success of these preliminary latrines induced the Medical Department to seek the co-operation of the Rockefeller Foundation in an intensive three year programme. This work has been confined to the island of Viti Levu, the largest and most heavily populated island in the Colony. Over 17,000 homes have been surveyed and nearly 15,000 bore-hole latrines completed, and it is proposed to continue this campaign throughout the Colony.

The following returns relative to infectious diseases have been prepared by the Medical Officer of Health and are submitted as Appendixes to this report, namely:—

(*a*) Table I—Infectious diseases—notification by districts.
(*b*) Table II—Infectious diseases notifications (cases) by nationalities;
(*c*) Table III—Infectious diseases notifications by monthly incidence.

II.—COMMUNICABLE DISEASES

Enteric Fever.—Fifty-eight cases were reported for the year only four of which were domiciled in the Suva area. There was no marked seasonal incidence. The laboratory tests indicated 100 per cent. typhosus infection—none of the para. group were reported.

Influenza.—Was epidemic throughout the entire Colony in a very mild form, during the last quarter. Two thousand two hundred and seventy-four cases were reported, an increase, by one thousand five hundred and twenty-four, over last years' returns.

Ankylostomiasis.—The hookworm campaign, which was started by the Rockefeller Foundation some years ago, has been continued by the Medical Department. The use of carbon tetrachloride and tetrachlorethylene, has been found to be most efficacious. By mass treatment 4,320 people have been treated.

Small-pox Vaccinations.—Fresh lymph is supplied periodically to the District Medical Officers and Native Medical Practitioners who, during the tour of their districts, vaccinate all the school children and unvaccinated people they can find.

Scabies—is being treated by the District Medical Officers and Native Medical Practitioners and Child Welfare workers. One thousand eight hundred and eight cases were reported for the year, a decrease of 127 over the previous year. It is gratifying to note that this disease is not so prevalent among the Fijian children as it was three years ago.

Dysentery.—While this disease is definitely being eliminated from Suva rural and urban areas, by the improved sanitary conditions, there is no doubt that this disease is like the poor, always with us, especially in the rural areas, where the sanitation still leaves much to be desired. During the year 399 cases were notified an increase by 150 over the previous year.

Anti-Malaria Measures.—Fiji is indeed a lucky Colony to be exempt from the ravages of this scourge of the tropics. The Port Health authorities enforce very strict regulations on all ships arriving from malarial ports.

Ringworm.—The Pacific Islander is very apathetic about this skin condition, especially as it causes no morbidity or incapacity. For some years back an anti-ringworm campaign has been conducted by the Rockefeller Foundation. The Child Welfare workers, District Medical Officers and Native Medical Practitioners have also co-operated in this work.

Filariasis.—In 1923 the London School of Tropical Medicine sent a research expedition to Samoa to study filariasis with a view to investigating the possibilities of the control of the Ædes variegatus, which is the principal carrier of this disease in the South Pacific Islands. Dr. P. A. Buxton, who carried out these researches, recommended the introduction of the megarhinus, the larvæ of which have long been known to prey on those of other mosquitoes. Colonies, therefore, for distribution to various parts of Fiji were bred in Suva during 1931 and 1932, and by April of the latter year, 51 colonies composed of nearly 3,000 individuals had been liberated. Mr. Paine, the Government Entomologist, and to whom we are indebted for this interesting experiment, is quite satisfied that the megarhinus is now well established. It is too early to observe any results, and I expect it will be many years before an appreciable decrease is noticed in the Ædes variegatus. It is, however, a scientific venture which has possibilities well worth watching.

Leprosy.—The Medical Superintendent, Makongai, gives a full report of the years work at the Central Leper Hospital (vide appendix). Table II in his report is of extreme interest in showing the proportion of neural to cutaneous cases in the various nationalities. The statement that Indians in spite of their apparently heavier initial infection show a much higher rate of improvement and a much lower proportion of cases advancing to the extreme condition, is very interesting. The suggestion that the psychical factor is a probable cause appears to me to be a reasonable explanation.

There were 89 admissions for the year of which 65 cases came from Fiji itself, 16 from Rotuma, seven from Samoa and one from Niue Island. It is also interesting to note that over 50 per cent. of the cases were of the neural type, and that only two showed extreme deformities, and that no case had reached the advanced cutaneous stage. This certainly represents a definite improvement in the type of case being admitted, and as stated is probably largely due to the growing realisation among practitioners and their patients of the importance of early diagnosis and treatment.

Tuberculosis.—The returns reported for the last six years are as follows:—

Year.	*Cases.*	*Deaths.*
1929	603	79
1930	512	60
1931	226	57
1932	286	39
1933	313	61
1934	289	54

According to Dr. S. M. Lambert, pulmonary tuberculosis is the outstanding preventable disease problem in the Western Pacific. Its occurrence is universal and medical opinion classes it as the greatest direct cause of mortality among the native races. This may be true, but there are not adequate statistics upon which such a judgment can be based. From the returns obtained in Fiji this disease is apparently not on the increase. The best solution of the tuberculosis problem in Fiji is without doubt the gradual education of the people to the appreciation of the sources of infection, the mode of its transmission, and the avoidance of infection.

III.—VITAL STATISTICS.

The graphs A and B, introduced in the Annual Report, 1932 have been extended for 1934, and show that the steady improvement in the birth and death-rate of the Fijian race has been maintained.

The estimated population at the end of 1933 and 1934 was:—

Race.	Males, 1934.	Females, 1934.	Total, 1934.	Total, 1933.	Increase.	Increase per cent.	Decrease.	Decrease per cent.
Europeans	2,444	2,319	4,763	4,804	..	..	41	·85
Half-castes	1,910	1,807	3,717	3,661	56	1·53	..	..
Fijians	50,498	47,981	98,479	96,656	1,823	1·88	..	..
Rotumans (all races)	1,244	1,254	2,498	2,521	..	..	23	·91
East Indians	48,748	34,541	83,289	80,991	2,298	2·83	..	..
Polynesians	1,252	614	1,866	1,878	..	..	12	·63
Chinese	1,332	154	1,486	1,476	10	·67	..	..
Others	868	483	1,351	1,251	100	8·00	..	..
Total	108,296	89,153	197,449	193,238	4,287	..	76	..

The number of births recorded during the last four years was:—

Race.	1931.	1932.	1933.	1934.	Crude birth-rate per 1,000, 1934.
Europeans	87	78	77	42	8·82
Half-castes	151	137	146	90	24·21
Fijians	3,301	3,260	3,393	3,696	37·52
Rotumans	113	97	127	92	36·83
East Indians	2,566	3,036	3,132	3,098	37·19
Polynesians	41	33	40	39	20·90
Chinese	16	17	22	20	13·47
Others	22	54	29	119	88·08
Total	6,297	6,712	6,966	7,196	36·44

The general birth-rate in 1933 was 36.05

The number of deaths recorded during the past four years was:—

Race.	1931.	1932.	1933.	1934.	Crude death-rate per 1,000, 1934.
Europeans	46	33	42	33	6·93
Half-castes	38	35	33	34	9·15
Fijians	2,076	1,698	1,713	1,948	19·78
Rotumans	35	47	63	115	46·04
East Indians	782	663	921	845	10·15
Polynesians	29	33	56	51	27·31
Chinese	8	7	10	4	2·69
Others	31	26	9	24	17·76
Total ..	3,045	2,542	2,847	3,054	15·47

The general death-rate for 1933 was 14·73.

The marriages, births, deaths and natural increase for 1934 were:—

Race.	Marriages.	Births.	Deaths.	Increase.	Decrease.
Europeans	32	42	33	9	..
Half-castes	33	90	34	56	..
Fijians..	778	3,696	1,948	1,748	..
Rotumans	16	92	115	..	23
East Indians	1,038	3,098	845	2,253	..
Polynesians	12	39	51	..	12
Chinese	..	20	4	16	..
Others	17	119	24	95	..
Total ..	1,926	7,196	3,054	4,177	35

The rates of natural increase were:—Europeans, 1·87 per thousand; Half-castes, 15·29; Fijians, 18·08; Indians, 27·82; Chinese, 10·84. The natural increase of all races was 21·79 per thousand.

INFANTILE MORTALITY, 1934.

Race.	No. of deaths under 1 year.	Rate per 1,000 births.	No. of deaths 1–5 years.
Europeans ..	1	23·81	..
Half-castes ..	5	55·55	5
Fijians	467	126·35	290
East Indians ..	257	82·95	70
Polynesians ..	10	256·41	8
Others	6	50·42	3
Rotumans ..	33	358·7	41
Total ..	779	108·25	417

The number of native births for 1934 was 3,696 against 3,393 in 1933 an increase of 303. The Indian births in 1934 were 3,098 against 3,132 in 1933 a decrease of 34. The birth rate per 1,000 of the whole population increased from 36·05 in 1933 to 36·44 in 1934.

The total number of deaths registered in 1934 was 3,054 an increase of 207 on the previous year's figures. The death rate per 1,000 of the Fijian population increased from 17·72 in 1933 to 19.78 in 1934, whereas the Indian death rate declined from 11·37 to 10·15.

The increase in the infant mortality was due to an epidemic of whooping cough which spread throughout the entire colony; the deaths of 302 Fijian children were directly attributed to this disease. The Fijian infant mortality per 1,000 births rose from 97·85 in 1933 to 126·35 in 1934 and the Indian rate increased from 70·88 to 82·95.

HEALTH STATISTICS OF EUROPEAN AND NATIVE OFFICIALS.

	Europeans.		Natives & Indians.	
	1933.	1934.	1933.	1934.
Total number of officials resident	385	336	415	403
Average number resident	340·9	314	394	393
Total number on sick list	135	142	161	207
Total number of days on sick list	1,172	1,236	1,507	1,669
Average daily number on sick list	2·93	3·4	4·13	4·5
Percentage of sick to average number resident	35·07	42·3	38·79	51·3
Average number of days on sick list each patient	8·7	8·7	9·3	8·1
Average sick time to each resident	3·04	3·7	3·63	4·1
Total number invalided out of Colony	5	6	...	...
Percentage of invaliding to total residents	1·29	1·8	...	...
Total deaths	2	1	1	4
Percentage of deaths to total residents	·52	·29	·24	·96
Percentage deaths to total average number resident	·58	·32	·25	1·02

Provincial officials and Native Medical Practitioners have been excluded from the 1934 return.

III.—HYGIENE AND SANITATION.

At the end of 1934 systematic sanitary inspection has been in force in Suva rural district for four years. The first year was devoted almost entirely to a sanitary survey and latrine campaign. Water supply and drainage then received more detailed attention. During 1934 still more general improvements have been made, but a good deal of time and trouble is required to maintain these improvements. There are over 2,000 premises requiring regular inspection and this number is steadily increasing. A European Sanitary Inspector, with an Indian assistant can average 30 inspections daily. Allowing for bad weather the whole sanitary district can be inspected every three months. We have now obtained a reasonable standard of sanitation for this district, and if this standard is to be maintained, quarterly inspections must be regarded as a minimum.

Owing to staff shortage and the consequent rearrangement of duties, the time available has naturally been reduced for this work. In spite of this, the number of inspections is nearly 400 higher than 1933. It can therefore be definitely stated that the general sanitary condition of this district is improving and a more ready co-operation on the part of the public with the inspecting staff.

GENERAL SANITATION—SUVA RURAL DISTRICTS.

(a) *Inspections.*—The systematic house-to-house inspection and re-inspection of the Suva Rural district have, as previously stated, been continued during the year, and the following visits have been made:—

Area.	*Inspections.*	*Re-inspections.*	*Total.*
A	418	119	537
B	347	110	457
C	557	264	821
D	630	294	924
E	541	177	718
F	974	445	1,419
G	322	174	496
H	364	211	575
	4,153	1,794	5,947

The above represents an average of 20 visits a day. There were 1,982 sanitary improvements ordered during the year and 2,020 completed during the year.

(b) *Notices served*—Three hundred and sixty-one written notices were served during the year.

(c) *Prosecutions.*—In 19 instances it was necessary to take legal proceedings for offences as follows:—

Failure to protect wells from contamination	11
Failure to maintain latrines in good order	7
Occupation of a dwelling house for which a certificate had been refused	1
	19

Convictions were obtained in each case and small fines inflicted. The object in taking these cases to court was not to secure heavy penalties, but to obtain compliance with sanitary law.

(d) *Closing Orders.*—Four closing orders were issued towards the end of the year for insanitary dwellings. It is proposed to pay more attention to this work in the near future, and a number of dwellings are under observation for demolition, unless substantial alterations and improvements are made.

(e) *Supply of Cement Slabs.*—The supply of latrine slabs and lids for bore-hole latrines has been continued. Fifty-one slabs were supplied during the year for installation.

(f) *New Dwelling Houses.*—During the year applications were received in respect of 184 proposed new dwellings. Visits were made to sites before erection and during the course erection to advise as to the requirements of dwelling house by-laws. One hundred and forty-four certificates were issued in respect of dwellings erected to comply with the by-laws. One thousand three hundred and eighty-three visits were made in connection with the erection of new buildings. Fifty-one dwellings were erected to replace insanitary buildings demolished.

(g) *Anti-mosquito Work and General Clearing.*—A gang of six men has been regularly employed clearing unoccupied Crown Land in the Suva area. In addition, many public drains and small water courses have been kept cleared and large numbers of empty tins, bottles, &c., buried or disposed of so as to prevent mosquito breeding.

Three hundred and sixty-eight latrines and accumulations of water have been oiled to prevent mosquito breeding. A colony of 40 pupæ of megarhinus mosquitoes was forwarded to American Samoa at the request of the Chief Medical Officer of that Colony to endeavour to combat filaria by the destruction of the larvæ of the *Aedes variegatus*.

IV.—PORT HEALTH WORK AND ADMINISTRATION.

Inspections.—Inspections for the year included:—Incoming vessels boarded, 144; Inspections of shipping (general), 106; Inspections of shipping for mosquitoes, 18.

Disinfection.—Consignments of second-hand clothing &c., have been dealt with at the Disinfecting Station on Pioneer Wharf and disinfection of vessels has been carried out where required.

Cleansing Work.—The foreshores near to Suva have been regularly inspected and cleared of accumulations of rubbish and jetsom weekly.

Inspection and Fumigation of Shipping and Anti-rat Measures.—Vessels arriving from plague infected or suspected ports, vessels likely to be harbouring adult anopheles mosquitoes, overseas vessels not holding deratisation or deratisation exemption certificates issued within six months, vessels about to go on slip, or be docked for repairs, and local ships when up for six-monthly survey are fumigated by port sanitary staff.

Table PI.—Vessels Fumigated during 1934.

Description of vessel.	Method of fumigation.				Rats obtained.	
	Clayton Gas.	Clayton Gas and Cyanide.	Cyanide.	Total.	Total.	Average per vessel.
Overseas	1	3	11	15	6	·4
Local	..	..	74	74	32	·4
Total ..	1	3	85	89	38	·4

" International " deratisation certificates issued—12.

The average number of rats per local vessel found after fumigation has again fallen. In 1929 when regular six-monthly fumigation was commenced, this figure was 50 per vessel, but in 1934 fell to the satisfactory low figure of ·4. These figures go far to support the efficiency of local fumigation methods and the absence of rats on these vessels must necessarily mean a reduction in loss to shipper through damage to cargo from rats. It is suggested this saving of damage more than covers the cost of six-monthly fumigation.

An Indian rat-catcher is employed in the Port and Municipal areas of Suva and has set traps and caught rats as set out in the following tables:—

Table PII.—Traps set and rats caught in Port and Municipal areas.

Spring traps.		Cage traps.		Sticky traps.	
Traps set.	Rats caught.	Traps set.	Rats caught.	Traps set.	Rats caught.
3,065	755	3,381	525	3,073	830

Total traps set	9,519
Total rats caught	2,110
Rats sent to laboratory for examination	683
Poison baits laid.	Nil.

It should be noted that in some instances traps set in dry weather may become non-effective by reason of heavy rains soon afterwards, tending to lower the number of rats caught for traps set.

Table PIII.—Species of Rats Caught.

Where obtained.	Species and numbers.		
	Black (*Rattus rattus*).	Brown (*Rattus norvegicus*).	Total.
Overseas shipping	6	..	6
Local shipping	32	..	32
Wharves, warehouses and residences	404	1,706	2,110
Totals ..	442	1,706	2,148

Sanitation of local shipping.—When up for fumigation local vessels are inspected for sanitary defects and where discovered these have been remedied.

V.—NATIVE CHILD WELFARE.

This work has been successfully continued throughout the year and the success attending the efforts of the hardworking nurses and their staff is very gratifying. The work is controlled by the Central Executive Committee, consisting of the Secretary for Native Affairs, the Chief Medical Officer and the Inspecting Medical Officer. In each district, committees have been formed under the Chairmanship of the District Commissioner, and in most villages Women's Committees have been formed and regular inspections of the children carried out, and minor ailments treated. Severe cases are brought to the nearest hospital for treatment. Towards the latter part of the year, it was possible to re-establish a Child Welfare Centre at Rotuma. One of the Roman Catholic Mission Sisters offered to carry out this work conjointly with her other duties. This offer was most gladly accepted. There has been a steady increase in the total native population which is no doubt largely due to the efforts of the Child Welfare workers.

MEDICAL INSPECTION OF SCHOOL CHILDREN.

Girls' Grammar School.—The pupils of this School show a good health standard. Although among the younger children there was a fairly high percentage of enlarged tonsils and carious teeth, *e.g.*, among 35 children examined, 10 were found to have enlarged tonsils and 9 with carious teeth. The School buildings are dilapidated but are situated on a fairly high airy site.

Boys' Grammar School.—In this School the children show a good average health except that boils are too prevalent. The installation of baths and hot water system might go far to eliminate skin conditions. From the 30th September and during October there was an epidemic of influenza in the School which necessitated the removal of more severe cases to hospital and isolation of the others in two of the school dormitories.

Queen Victoria School.—The health of the boys of this school has much improved since regular inspection by a Native Medical Practitioner from the Colonial War Memorial Hospital has been instituted. The efforts of Native Medical Practitioner Filikesa Ramaqa and Alokihakau Eva have done much towards the elimination of skin diseases and yaws. There were several cases of tropical ulcer during the year. This was probably due to lack of certain factors in diet and will tend to recur until a diet more approaching the native standard is insisted on.

Provincial schools and the different Church Mission schools throughout the Colony were inspected twice a year by the District Medical Officer in each district. Records are kept by means of a card system, which are invaluable for comparison in future years. The general health of the children was, on the whole, excellent.

VI.—HOSPITALS AND DISPENSARIES.

The Colonial War Memorial Hospital is a two-storeyed ferro-concrete building on a site commanding a fine view of Suva Harbour. A partial third storey constitutes the kitchen, &c., and being built in this position there is no odour in the wards.

The staff consists of the Chief Medical Officer as consultant, the Medical Superintendent as physician and surgeon, and the Assistant Medical Superintendent who is medical officer in charge of the out-patient department, is also radiologist and has charge of a medical ward. The nursing staff consists of Matron, Assistant Matron, four graduate staff nurses and one native obstetrical staff nurse. There are in training thirteen European probationers and twenty native probationers. The final year medical students act as dressers and ward clerks. The work of the hospital seems every year to get heavier, every bed, especially European, being occupied, and there is also a long waiting list.

There were 2,398 in-patients treated during the year and 19,935 out-patients; 1,252 injections of arsenical preparations were given for yaws; 2,898 operations were performed during the year. The X-ray department had a busy year, a total of 1,025 patients in all being examined. Among this number 1,223 films were exposed and 263 screen examinations were made. The steady increase in the number of patients being dealt with in this department each year is shown by the fact that in 1931, 444 patients were examined; in 1932, 651; in 1933, 749; and in 1934, 1,025 This is, without doubt, due to the increased use which is being made of special methods of radiographic examination. In fact this part of the work was exactly double that of the previous year —252 cases being examined as against 126 in 1933. For pyelography, moselection by intravenous injection is still being used, while for cholecystography, opacol by oral administration has replaced the earlier use of opacin intravenously. The wider application of the various methods of examination of abdominal viscera by the administration of radio-opaque substances has been entirely due to the installation of the X-ray plant donated to the Hospital by the Honourable Sir Henry Marks.

The Central Medical School.—During 1934 the transition period from a three to a four year course was completed. The students that graduated in December were the first to receive certificates under the four year course. The School was fortunate in again receiving a gift of books from the New York Academy of Medicine through the kind auspices of Dr. Frederick Peterson. Senior students and Post-graduates have received practical instruction in Child Welfare which should be of inestimable value of these young doctors when they commence practice in the country districts. Thanks to the Rockefeller Foundation, which has indeed been a Fairy Godmother to the Fiji Medical Department, a grant of £2,200 has been allocated towards the erection of a combined Pathological and Bacteriological Department. This new Department will fill a long felt want, as the practical teaching of Pathology and Bacteriology has never been a feasible proposition owing to lack of facilities. At the final examination held in December, 1934, seven students qualified; one to go to Tonga; two to Samoa, and four to the Fiji Medical Service. In addition, four Native Medical Practitioners received Post-graduate Certificates.

The following table shows the number and race of the students in each year of training at the commencement of lectures in January, 1934:—

	1st year.	*2nd year.*	*3rd. year.*	*4th year.*
Samoans, Western	.	.	1	2
Samoans, Eastern	.	1	.	.
Tongans	.	1	2	1
Cook Islanders	.	.	1	.
Gilbert and Ellice Islanders	.	1	2	1
Solomon Islanders	1	1	1	.
New Hebrides	1	.	.	.
Indians (Fiji born)	.	1	.	1
Fijians	.	7	4	4
	2	12	11	9

Lautoka Hospital is the second largest hospital in the Colony, and is fortunate in being under the able administration of Dr. Harper, a keen and exceedingly conscientious District Medical Officer. The work of this unit, has, of late, increased enormously and in consequence the European nursing staff has had to be augmented. Better facilities have also been provided for the care of maternity cases. This has filled a long felt want. In all there were 1,962 patients admitted during the year with 88 deaths; 11,177 out-patients also received treatment. Six hundred and fourteen operations were performed on in-patients and 615 on out-patients.

Lambasa Hospital is a general hospital with a thirty bed capacity which supplies the main medical and surgical requirements of the district of Mathuata. Four hundred and seventy-two patients were admitted. The daily average of in-patients was 14·675. Eight thousand nine hundred and forty-four patients received out-patient treatment; 423 minor operations were performed during the year and 60 major; 28 deaths are recorded as occurring in the hospital. The staff of this hospital consists of the District Medical Officer, Lambasa, a European Sister, three native nurses and a Native Medical Practitioner. Thanks to the Colonial Sugar Refining Company, new quarters have been erected for the Sister-in-Charge.

The Dreketi Dispensary is in charge of a Native Medical Practitioner. Over 1,008 patients received treatment; 21 minor operations and three under a general anæsthetic.

The Visoqo Dispensary is in charge of Native Medical Practitioner Wilisoni Qara, who is one of our outstanding Native Practitioners. One thousand three hundred and seventeen patients received treatment during the year; 258 arsenical injections were given and 122 minor operations. As well as being in charge of this dispensary Wilisoni does a lot of travelling in the Northern end of the Province.

Levuka Hospital is in charge of the District Medical Officer, Levuka, and is the one main hospital in the province of Lomaiviti. The European portion of the building consists of two wards, a small one with one bed and a larger one with three beds. It also contains the Sister's quarters, and the kitchen where the cooking for the whole hospital and staff is done. The native section contains a male and female section with a small room in the centre; in all there are 13 beds although more can be placed on the verandahs if required. The operating theatre occupies a position midway between these two parts and is connected to both by a covered way. The isolation block is separate and can accommodate eight patients. There is also a leper hut and a mortuary, both of which are in good repair. Ample provision is made for housing the staff, which consists, apart from the European Sister, of a Native Medical Practitioner, a dresser, two native obstetric nurses, two general servants and a cook. The dispensary is placed in the native portion of the building. Generally speaking the Levuka Hospital adequately serves the province and is comparatively well equipped for a hospital of its size. It is pleasantly situated in its own compound and faces the seashore. The number of in-patients treated during the year was 267, with 3,466 out-patients. Twenty-five major operations under a general anæsthetic were performed during the year, and 180 minor operations; 279 injections of N.A.B. were given. The number of deaths occurring in hospital was 10.

Penang Hospital is a very compact and well situated building containing four wards of a capacity of sixteen beds. It is mainly patronised by Indians, as it is situated close to the Penang Sugar Mill. The pressure for in-patient accommodation at this hospital is beginning to make itself felt, particularly in regard to infectious diseases. The number of in-patients treated at this hospital was 213 of these 73 were Fijians, 130 Indians, one European and nine others. In the out-patient department 2,878 received treatment; 13 minor operations and 4 major were performed during the year. Fifty-three injections of N.A.B. were given during the year. The number of deaths in the hospital was 10.

Nukuloa Hospital.—This hospital is situated on the slope of a hill overlooking Viti Levu Bay. The new Government road between Suva and Singatoka runs along the foot of the compound. The hospital consists of large male and female wards with open verandahs, two separate buildings for the isolation of infectious diseases, a dispensary with a room attached which serves as an operating theatre and also for the examination of out-patients. During the year extensive repairs and painting were effected to nearly all the buildings in the compound by the Public Works Department, Lautoka. The water supply to the Hospital is by pipe from a reservoir up in the hills. This has been regularly cleaned out, and while the Public Works Department men were at Nukuloa, repairs were effected, and the whole pipe system inspected and overhauled. One hundred and sixty-four in-patients were treated during the year and 2,380 out-patients; 74 minor operations were performed and 4 major; 352 injections of N.A.B. were given. Eight deaths occurred in hospital during the year.

Ndraunivi Dispensary is situated at Ndraunivi village, which is about 14 miles west of Vaileka. It is convenient to the New Government road and serves a fairly wide area in that locality. A travelling Native Medical Practitioner visits this dispensary about twice a week. He reports having attended 200 out-patients, performed 31 minor operations and 4 under a general anæsthetic.

Namari Dispensary is situated at Namari village in the district of Nakorotambu about 2½ hours by launch from Nukuloa. A Native Medical Practitioner is in charge as this dispensary serves about five districts and is fairly well patronised by the natives. The native Medical Practitioner reports as having attended to 637 out-patients, performed 30 minor operations, given 512 N.A.B. injections.

Taveuni Provincial and Cottage Hospitals.—There is one medical centre in the district at the Government station, Waiyevo. At this centre are the large provincial hospital for natives, and the cottage hospital for Europeans, with the District Medical Officer, the European Sister at the Cottage Hospital, and the Native Medical Practitioner in charge of the Provincial Hospital, a

Native nurse and dresser. The Provincial Hospital was entirely rebuilt in 1931, and is now a large airy building having three general wards, maternity and isolation wards. The normal accommodation for general patients is twenty-four beds—bath, latrine and water supply are excellent. Four hundred and twenty-seven in-patients were treated and 2,280 out-patients; 100 minor operations were performed and 24 major; 304 N.A.B. injections were given. Five deaths occurred during the year.

The Cottage Hospital is in charge of Sister Ifwerson, who maintains a very high standard of comfort for the patients. Eighty cases have been admitted to the Cottage Hospital during the year. Further improvements have been made in the building and grounds, and the Hospital is a very great asset to the district.

Hospitals in the Mba District.—There are four hospitals in this district, all within an area of five miles, three of which are under the charge of the District Medical Officer. The fourth an Indian Mission Women's Hospital in under the care of a woman doctor.

Nailanga Hospital.—This hospital is situated in the native village of Nailanga, about five miles from the sugar mill and Varoka Township. It consists of two main wards, one for males and the other for females, an operating theatre, dispensary and two isolation wards. During the year 148 in-patients were treated. The out-patient Department served 1,959; injections of N.A.B. were given for yaws during the year.

Rarawai Hospital.—This hospital is one of the few remaining plantation hospitals and belongs to the Colonial Sugar Refining Company. Four hundred and thirty-five in-patients received treatment and 7,579 out-patients. 82 N.A.B. injections were given. There were 31 deaths during the year.

Mba Cottage Hospital is a small hospital of three wards, and belongs to the Colonial Sugar Refining Company and is patronised by Europeans and half-castes only. A European resident Sister is in charge. A grant-in-aid of £100 per annum is made by the Government. The Colonial Sugar Refining Company also subsidise this unit.

The Mission Hospital at Namasau is the property of the Methodist Mission with an efficient staff consisting of a resident Lady Doctor, Matron and two European Sisters. It is subsidised by the Government at the rate of £400 per annum. The total number of in-patients was 429 and 4,331 out-patients. The daily average of patients in hospital was 13·86 and the total number of deaths for the year was 17.

The Savusavu Provincial Hospital and Cottage Hospital.—This Hospital is situated at Nambauto. It consists of three wards, two native and one used as a cottage hospital by the Europeans. It has nine beds, a dispensary and an operating room. One hundred and sixty-three cases were treated as in-patients and 2,302 as out-patients. There were 6 deaths in Hospital.

Nandronga Provincial Hospital is situated at Koromumu and serves the provinces of Nandronga and Tholo West. The District Medical Officer's quarters and the Native Medical Practitioner's quarters are situated in the hospital compound. The hospital has 21 beds and consists of three wards, and an operating theatre. Two hundred and thirty-four in-patients were treated during the year and 2,575 out-patients . There were 11 deaths.

Rotuma Hospital.—The staff consists of one Native Medical Practitioner and a Native Obstetric Nurse. Three hundred in-patients received treatment during the year and 1,058 out-patients. Seven hundred and sixty-four N.A.B. injections were given.

Nandi Hospital.—The number attending the out-patient department of this hospital shows a steady increase reaching this year the figure of 9,072, the highest since the hospital was established. The total number of admissions was 291. The daily average in the hospital was 8·19; 480 injections were given during the year for yaws.

Wainimbokasi Hospital serves the provinces of Rewa, Tailevu and Naitasiri. There is a resident senior Native Medical Practitioner in charge under the District Medical Officer, Rewa. There were 338 in-patients treated during the year and 2,512 out-patients with 21 deaths; the daily average number of in-patients during the year was 16·61.

Indian Free Dispensary at Nausori.—This is situated conveniently below the Colonial Sugar Refining Company's Hospital on the tram line. The number of attendances during the year was 378. The Colonial Sugar Refining Company Hospital Superintendent acts as a Dispenser and in the unavoidable absence of the District Medical Officer sees any cases attending.

The Nausori Plantation Hospital is administered by the Colonial Sugar Refining Company chiefly for their employees, but its benefits are also open to the public. At the out-patient department, 3,806 received treatment.

The Native Medical Practitioners throughout the Colony treated 37,416 cases with 261 deaths.

The following tables show the number of admissions and deaths at the hospitals of the Colony:—

COLONIAL WAR MEMORIAL HOSPITAL.

Year.	*Admissions.*	*Deaths.*	*Death-rate.*
1932	2,345	145	6,18
1933	2,509	161	6·41
1934	2,398	144	6·0

LAUTOKA HOSPITAL.

Year.	*Admissions.*	*Deaths.*	*Death-rate.*
1932	1,615	59	3·65
1933	1,860	81	4·3
1934	1,862	88	4·73

LEVUKA HOSPITAL.

Year.	*Admissions.*	*Deaths.*	*Death-rate.*
1932	241	12	4·98
1933	249	11	4·6
1934	269	10	3·72

LAMBASA HOSPITAL.

Year.	*Admissions.*	*Deaths.*	*Dezth-rate.*
1932	406	21	5·17
1933	501	29	5·78
1934	522	29	5·55

PROVINCIAL HOSPITALS

Year.	*Admissions.*	*Deaths.*	*Death-rate.*
1931	3,125	45	1·44
1932	3,377	63	1·86
1933	2,885	155	5·37
1934	2,398	135	5·63

NATIVE MEDICAL PRACTITIONERS.

Year.	*Cases treated.*	*Deaths.*
1931	35,017	210
1932	36,800	178
1933	36,975	183
1934	37,416	261

VII.—PRISONS AND ASYLUMS.

The sanitary conditions of the gaols throughout the Colony were maintained at the usual high standard and reflect credit on all concerned. A modern bakery at the Suva Gaol is run by the inmates and supplies bread of a very good quality to the prisons and staff, Public Lunatic Asylum, Colonial War Memorial Hospital and the Grammar Schools. There were 38 cases of influenza, 12 cases of dysentery, and 16 cases of epidemic dropsy treated at the Suva Gaol Infirmary. Three hundred and nineteen inmates received treatment, and there was one death.

The Public Lunatic Asylum is under the care of a Medical Superintendent who is also Assistant Medical Superintendent, Colonial War Memorial Hospital. The resident staff consists of two European male attendants and a European female attendant. The total number of patients treated for the year was 104 of which 78 remained over from last year while 26 were new admissions. During the year 10 patients were discharged unconditionally and 6 allowed out on trial. There were 17 deaths and 71 patients remained at the end of 1934. The careful supervision necessary to maintain cleanliness of person and surroundings among mental patients has been satisfactorily carried out. One case of bacillary dysentery and two suspected cases were transferred to the Colonial War Memorial Hospital. No other cases of serious infectious disease occurred and it is of interest to note that the influenza epidemic towards the end of the year was scarcely felt in the Institution only one or two mild cases occurring. On the whole the general health of the patients has been good. The daily average number of patients was 79.

VIII.—METEOROLOGICAL.

The meteorological statistics appear on page 60 of this report. The total rainfall in Suva was 134·33 inches of which 22·65 fell in March and the smallest amount, 3·20 inches in June. The heaviest rainfall for the year occurred on the 19th March when 6·16 inches fell.

IX.—SCIENTIFIC.

A paper by Dr. T. Clunie, Medical Superintendent, Colonial War Memorial Hospital, on Plastic surgery in the Tropics is attached to this report.

X.—GENERAL.

Drugs and Poisons Ordinance (Dangerous Drugs).

Permits were granted during 1934 to remove from the opium store the following quantities of dangerous drugs:—Tr. opium conc. (1–7), 6 pts. 12 ozs.; (1–9), 5 pints; (1–7–15 ℔). Tr. opium—B.P.—20 pints, (nil); cocaine hydrochloride—1 ℔, (nil); heroin hydrochloride—1 oz., (nil); pulv ipecac. comp— 14 ℔, (nil); ung. gallæ c opio—20 ℔, (nil); codeine phosphate—2 ozs., (nil); extract cannabis indica—2 ozs., (nil). The figures in brackets refer to 1933.

A. H. B. PEARCE,
Chief Medical Officer.

APPENDIX A.

COLONIAL WAR MEMORIAL HOSPITAL.

RETURN SHOWING THE EXPENDITURE AND REVENUE IN EACH OF THE LAST TEN YEARS AND THE COST PER BED OCCUPIED.

Year.	In-patients.	Daily average in hospital.	Expenditure	Cost per head per day. Personal Emoluments	Cost per head per day. Other Charges.	Cost per head per day. Total.	Patients fees received.	Fees, if paid, of patients treated gratuitously
			£ s. d.	d.	d.	d.	£ s. d.	£ s. d
1925	1,434	85·16	10,037 7 6	36·8	40·6	77·4	1,179 13 0	2,409 13 0
1926	1,767	76·20	9,605 19 4	38·2	44·6	82·8	1,265 18 5	2,832 1 0
1927	2,180	81·51	10,192 14 2	38·2	44·0	82·2	1,452 7 7	3,389 0 0
1928	2,141	72·60	11,061 19 0	45·6	54·5	100·1	1,461 11 2	3,580 3 6
1929	2,464	80·3	11,029 0 0	42·3	48·0	90·3	1,534 11 5	3,097 15 0
1930	2,805	87·51	10,976 18 2	39·2	43·4	82·6	1,377 0 9	4,551 4 0
1931	2,303	87·04	10,690 19 1	43·8	36·9	80·5	1,628 6 5	3,278 0 0
1932	2,345	95·2	11,085 5 5	40·5	35·2	75·7	2,098 3 7	6,662 5 0
1933	2,509	104·83	11,382 19 6	38·4	33·1	71·5	2,067 5 3	5,497 18 10
1934	2.398	106·45	11,762 7 0	37·7	34·9	72·6	1,999 17 7	5,428 18 2

Remarks.—Salaries of the Medical Officers are included. The expenditure on the Central Medical School is not included. The cost of drugs used for out-patients is included. The expenditure under Works Department votes is not included.

LAUTOKA HOSPITAL.

RETURN OF EXPENDITURE FOR EACH OF THE PAST FIVE YEARS AND THE COST PER BED OCCUPIED.

Year.	Average daily number in hospital.	Expenditure.	Cost per head per day.		Total.
			Personal Emoluments	Other Charges.	
		£ s. d.	d.	d.	d.
1930	44·0	3,334 19 6	16·1	33·7	49·8
1931	38·5	2,738 8 4	16·7	30·1	46·8
1932	44·0	3,026 8 3	14·3	30·7	45·0
1933	48·0	3,245 8 8	14·2	30·2	44·4
1934	49·0	3,366 14 1	13·2	32·0	45·2

Remarks.—Does not include salaries of Medical Officers or of expenditure under Public Works Department. Cost of all drugs used is included.

LEVUKA HOSPITAL.

RETURN OF EXPENDITURE FOR EACH OF THE PAST FIVE YEARS AND THE COST PER BED OCCUPIED.

Year.	Average daily number in hospital.	Expenditure.	Cost per head per day.		Total
			Personal Emoluments	Other Charges.	
		£ s. d.	d.	d.	d.
1930	13·0	970 16 10	18·4	30·6	49·0
1931	11·6	958 8 2	20·2	34·1	54·3
1932	12·3	1,013 9 6	17·4	36·6	54·0
1933	13·0	1,012 6 5	16·3	34·9	51·2
1934	8·16	956 19 7	25·2	51·8	77·0

Remarks.—Does not include salaries of Medical Officers or of expenditure under Public Works Department. Cost of all drugs used is included.

LABASA HOSPITAL.

Return of Expenditure and cost per patient per diem.

Year.	Average daily number in hospital.	Expenditure.	Cost per head per day.		Total.
			Personal Emoluments.	Other Charges.	
		£ s. d.	d.	d.	d.
1932	11·95	1,267 3 10	20·84	48·53	69·37
1933	22·5	1,408 8 8	11.8	29·3	41·1
1934	14·67	1,212 5 9	18·6	35.0	53·6

Remarks.—Does not include salaries of Medical Officers or of expenditure under Public Works Department. Cost of all drugs used is included.

LUNATIC ASYLUM.

Return of Expenditure for each of the past five years and cost per patient per diem

Year.	Average daily number in asylum.	Expenditure.	Cost per head per day.		Total
			Personal Emoluments	Other Charges.	
		£ s. d.	d.	d.	d.
1930	81·94	3,558 14 5	13·7	14·2	27·9
1931	80·25	3,327 9 8	12·8	14·4	27·2
1932	80·2	3,415 7 5	15·1	12·8	27·9
1933	81·0	3,183 4 11	12·6	13·2	25·8
1934	79.0	3,261 10 7	12·8	14·4	27·2

Remarks.—Expenditure under Public Works Department votes and Medical Officers salaries not included.

MAKOGAI CENTRAL LEPER HOSPITAL.

Return of Expenditure for each of the past five years and the cost per patient per diem.

Year.	Average daily number in Hospital.	Expenditure.	Cost per head per day.		Total
			Personal Emoluments	Other Charges.	
		£ s. d.	d.	d.	d.
1930	425·59	12,505 5 11	7·8	12·2	20·0
1931	465·92	12,488 4 0	6·7	10·9	17·6
1932	471·89	12,659 17 5	6·5	11·3	17·9
1933	450·16	12,846 15 8	7·0	11·8	18·8
1934	448·25	13,292 18 10	7·06	12·44	19·5

Remarks.—Does not include expenditure under Public Works Department votes which was in 1933, £1,232 10s. 7d., on maintenance and £243 17s. 2d. on permanent improvements, and in 1934, £1,820 4s. 10d., on maintenance and £1976 12s. 8d. on permanent improvements.

RETURN SHOWING DAILY COST PER BED OCCUPIED DURING 1933 AND 1934 OF THE HOSPITALS AND ASYLUMS OF THE COLONY.

Hospital.	1933.			1934.		
	Aver. daily No. in Hosp.	Cost per head per day.		Aver. daily No. in Hosp.	Cost per head per day.	
		s.	d.		s.	d
Colonial War Mem. Hospital	104·83	5	11·5	106·5	6	0·6
Lautoka Hospital	48·0	3	8·4	49·0	3	9·2
Central Leper Hospital ..	450·16	1	6·8	448·25	1	7·5
Levuka Hospital	13·0	4	3·2	8·16	6	5·0
Labasa Hospital	22·5	3	5·1	14·67	4	5·6
Public Lunatic Asylum ..	81·0	2	1·8	79·0	2	3·2
Penang Hospital	7·2	3	3·9	5·4	3	8·8
Nadi	17·94	1	7	8·19	3	5·1
Ba	12·81	1	1·4	15·81	0	11·6
Taveuni	12·98	1	7·2	17·5	1	4·0
Rewa	17·13	0	11·5	16·61	0	10·0
Kadavu	13·0	1	3·2	13·5	1	1·8
Nadroga	10·33	1	11·1	7·2	1	10·9
Ra	3·73	4	5·6	4·7	5	10·9
Bua	7·4	2	1·1	14·61	0	10·1
Savusavu	19·32	1	0·2	24·87	0	10·57
Lau (Lomaloma)	3·6	5	9·5	3·92	2	6·0
Colo East	14·17	0	9·9	16·81	0	8·0
Rotuma	2·56	7	1·8	3·1	8	6·5

APPENDIX B.

ISSUES FROM THE GOVERNMENT PHARMACY DURING 1934.

1. Medical Departments—

A—Hospitals and Dispensaries—	£	s.	d.	£	s.	d.
Colonial War Memorial	1,379	17	11			
Cicia	7	1	8			
Cikobia	10	8	7			
Davuilevu	54	13	5			
Dilkusha	37	6	5			
Draunevi	12	6	2			
Dreketi	25	8	6			
Gau	31	17	11			
Kadavu	71	7	0			
Koro	29	14	6			
Korovou (Tailevu)	27	0	11			
Korolevi-i-wai	18	6	4			
Labasa	311	5	2			
Labasa Indian Mission	8	8	7			
Lakeba	91	13	6			
Lautoka	809	12	4			
Lekutu	50	15	0			
Levuka	209	2	6			
Lodoni (Tailevu)	12	11	3			
Lomaloma	59	11	1			
Matuku	20	15	1			
Moala	21	15	1			
Momi	16	8	3			
Nadrau	2	7	3			
Nadi	147	17	10			
Nadroga	97	8	3			
Nadarivatu	26	17	4			
Naduruloulou	7	19	1			
Nabouwalu	72	8	11			
Nailaga	72	5	11			
Nakasaleka	7	16	7			
Namarai	16	6	5			
Namata	23	12	9			
Namosi	33	15	5			
Nanukuloa	163	3	1			
Nasau	9	2	3			
Nabumakita	11	4	6			
Natewa	43	10	2			
Natuatuacoko	31	7	6			
Nausori Free Indian	2	12	9			
Navua	76	17	10			
Nayavu	26	17	11			
Ono-i-Kadavu	13	18	9			
Ono-i-Lau	51	17	0			
Penang	123	19	1			
Qaliyalatina	1	19	2			
Rewa	33	7	11			
Rotumah	268	9	10			
Savusavu	174	15	10			
Serua	21	2	11			
Taveuni	107	15	2			
Veitogo	15	5	0			
Viria	25	16	3			
Visoqo	19	18	1			
Vunidawa	57	14	2			
Wainibokasi	99	10	1			
Wainunu	27	2	4			
Yasawas	20	8	6			
Total Hospitals and Dispensaries				5,253	19	0
B—Native Obstetric Nurses				37	16	3
C—Public Institutions (Asylums)—						
Public Lunatic Asylums	8	1	4			
Central Leper Station (Makogai)	270	11	10			
Total Public Asylum				278	13	2
Carried forward				5,570	8	5

Brought forward	....	5,570 8 5
D—Typhoid Immunization Campaign—		
Labasa District	2 5 0	
Levuka	29 7 0	
North-West Vitilevu (Lautoka)	44 6 6	
Ra	28 4 6	
Rewa	2 5 0	
Suva	5 12 6	
Total Typhoid Immunization	....	112 0 6
E—Other Medical Departments	....	121 14 0
Total Medical Departments	....	5,804 2 11
2. Provinces	....	10 13 7
3. Fijian Infant Welfare Scheme	....	363 17 7
4. Other Government Departments—		
Schools	43 3 8	
Police	0 18 3	
Yaws and Ringworm Campaign	7 16 0	
Gaol Infirmary	31 14 3	
Other Government Departments	87 3 9	
Total Government Departments	....	170 15 11
5. Native Land Commission Surveyors		15 0 0
6. Missions		5 1 6
7. Private Accounts	....	91 17 0
Total Issues from the Pharmacy	....	£6,461 8 6

APPENDIX C.

REVENUE, MEDICAL DEPARTMENT.

	1933.	1934.
Head IV—		
1. (i) Dairy Licences, Suva and Levuka	£40 5 0	34 15 0
4. Drug Permits	17 0 0	17 10 0
Head V—		
23. Hospital Fees, Colonial War Memorial Hospital, Levuka, Labasa and Lautoka Hospitals	2,747 8 2	2,735 19 8
Public Lunatic Asylum	51 1 0	....
Contributions to Hospitals and Native Medical Service	387 0 0	....
25. Meat Inspection Fees	331 1 6	369 16 6
26. Central Leper Hospital Fees	2,352 2 1	2,908 2 7
27. Fees, Plantation Labourers, Lautoka Hospital	800 0 0	1,200 0 0
28. Central Medical School	1,456 16 6	1,339 13 5
Head IX—		
2—(*a*) Makaluva and Nukulau Fees	88 18 0	87 3 6
(*b*) Sale of Government Drugs	99 3 0	115 7 3
(*c*) Fumigation and Disinfection Fees	121 1 10	174 0 2
(*d*) Sale of Stock	10 3 6	21 6 0
3. Sale of Produce, Makogai	124 18 2	100 4 9
4. Bakery Receipts Makogai	295 8 5	269 4 5
15. Ten per cent. Profits Makogai Canteen	5 13 6	10 16 0
2. Quarantine Fees s.s. "Ganges" and s.s. "Mariposa"	501 6 9	....
Total	£9,429 7 5	£9,383 19 3

APPENDIX D.

ESTABLISHMENT.

The Medical Staff of the Colony as sanctioned for the year 1934 was:—

Administrative.—Chief Medical Officer, 1; First Class Clerk, 1; Third Class Clerks, 3; Fourth Class Clerks, 1; Pharmacist, 1; Messenger, 1; Packer, 1.

Medical.—District Medical Officers, 12 (two of these are also District Commissioners); Native Medical Practitioners, 58; Indian Medical Practitioners, 5; Native Obstetric Nurses, 50.

Colonial War Memorial Hospital.—Medical Superintendent, 1; Assistant Medical Superintendent, 1; Native Dispenser, 1; Matron, 1; Assistant Matron, 1; Nursing Sisters, 4; European Probationers, 13; Nurse-Housekeeper, 1; Native Obstetric Nurses, 2; Native Nursing Pupils, 20; Steward and Clerk, 1; Servants, 24; Fourth Class Clerk, 1; Mechanic, 1; Hall Porter, 1.

Levuka Hospital.—Nurse in Charge, 1; Native Dispenser, 1; Nurses (native), 2; Servants, 4.

Lunatic Asylum.—Head Attendant, 1; Female Resident Attendant, 1; Native Attendant 9 male, 6 female; Servants, 2.

Central Leper Hospital.—Medical Superintendent, 1; Lay Superintendent, 1; European Nursing Sisters, 15; Native Sisters, 10; Overseer, 1; Native Constables, 3; Servants, 19; Leper Patients employed as Servants, Headmen or School Teachers, 12; Bakers, 4.

Labasa Hospital.—Nurse in Charge, 1; Native Medical Practioner, 1; Native Nurses, 2; Servants, 5.

Lautoka Hospital.—Native Medical Practitioner, 1; Matron, 1; Nursing Sisters, 2; Dresser, 1; Native Nurses, 7; Servants, 10.

Sanitary—(1) General.—Medical Officer of Health, Suva, 1; European Sanitary Inspectors, 3; Fijian Sanitary Inspector, 1; Indian Sanitary Inspectors, 2; Police Officers who are also Sanitary Inspectors, 6; European Caretaker, Quarantine Station, 1; Indian Caretaker, Quarantine Station, 1; Bacteriologist, 1.

(2) *Ankylostomiasis Campaign.*—Indian Sanitary Inspectors, 5.

MEDICAL STAFF POSTINGS.

The Medical Staff postings on 31st December, 1934, were:—

A. H. B. Pearce, L.R.C.P. & S. (Edin.), L.F.P.S. (Glasgow); D.P.H. (Dublin), Chief Medical Officer on leave.

V. W. T. McGusty, M.B., Ch.B. (Dublin), Inspecting Medical Officer, Acting Chief Medical Officer.

W. M. Ramsay, L.R.C.P. & S. (Edin.), L.F.P.S. (Glasgow), on leave.

A. J. Borg, M.D. (Malta), District Medical Officer, Ba.

H. S. Evans, M.R.C.S., L.R.C.P., District Medical Officer and District Commissioner, Taveuni.

T. Clunie, M.B., Ch.B. (Aberdeen), Medical Superintendent, Colonial War Memorial Hospital.

F. E. Montague, M.R.C.S., L.R.C.P., District Medical Officer, Nadroga.

M. L. McCauley, M.B., Ch.B., District Medical Officer, Ra.

R. J. Snodgrass, L.R.C.P. (Edin.), L.R.C.P., L.D.S., R.C.S.E., District Medical Officer, Nadroga.

C. J. Austin, M.B., Ch.B. (Edin.), Medical Superintendent, Makogai Leper Asylum.

W. G. MacNaughton, M.B., Ch.B. (Glasgow), District Medical Officer, Levuka.

G. T. Barnes, M.B., Ch.B. (Birmingham), District Medical Officer and District Commissioner, Savu Savu.

W. Foskett, M.C., M.B., B.S., on leave.

W. Worger, M.R.C.S. (London), L.R.C.P. (England), District Medical Officer, Labasa.

F. Widlake, L.M.S.S.A. (London), on leave.

R. W. D. Maxwell, M.B., Ch.B. (N.Z.), Assistant Medical Superintendent, Colonial War Memorial Hospital.

Leave.—Dr. C. J. Austin, 1st January to 23rd March; Dr. G. T. Barnes, 1st January to 19th November; Dr. W. G. MacNaughton, 1st January to 20th September; A. N. Caldwell, 1st January to 15th January; Miss M. R. Addis, 1st January to 4th June; Mrs. A. F. Lindsay, 19th January to 23rd August; Miss A. B. Montgomery, 27th January to 8th March; Hon. A. H. B. Pearce, 22nd February to 31st December; Miss H. Pankhurst, 20th March to 19th June; W. C. Cockell, 30th March to 9th April; Rev. Sister Mary Benoit, 12th April to 31st August; Dr. W. M. Ramsay, 15th April to 31st December; Miss K. M. McKavanagh, 12th June to 25th September; Mrs. V. M. Davidson, 3rd June to 16th July; Mrs. M. Wright, 20th July, to 25th October; Miss V. E. Brahne, 24th August to 23rd November; D. W. Hoodless, 3rd August to 31st December; E. A. Neff, 24th August to 23rd November, Miss M. P. Ragg, 7th August to 31st December; H. E. Ellis, 4th September to 31st December; W. Foskett, 2nd September to 31st December; Nemani V. Delai, 16th October to 31st December; C. A. Brabant, 30th October to 31st December; Miss E. F. Hughes, 27th November to 31st December; Dr. R. J. Snodgrass, 8th November to 13th December; Dr. F. Widlake, 27th November to 31st December; Rev. Sister Mary Theodore, 20th December to 31st December.

REPORT BY DR. C. H. B. THOMPSON, MEDICAL OFFICER OF HEALTH AND PORT HEALTH OFFICER, SUVA, FOR THE YEAR 1934.

General.—For the first three-quarters of the year the general health of the community was good, but during the last quarter, influenza of a mild type was epidemic.

Meteorological.—The total rainfall for the year was 134·33 inches, as against 151·40 inches for 1933, the average rainfall for the last 50 years being 118·61 inches.

Staff Movements and Appointments.—Ratu Peni Latianara, Fijian Sanitary Inspector, resumed duty on 1st February, after 3 months vacation leave.

PORT OF SUVA.

Infectious diseases in or in the vicinity of ports in communication with Fiji:—

Disease.	*Ports or countries.*	*Quarters of year.*
Chicken-pox	North American ports and Honolulu	1, 2, 3, 4
Cholera	Calcutta	1, 2, 3, 4
	Shanghai	3
Dysentery	Solomon Islands	4
Influenza	North American ports	1. 2, 3, 4
	Honolulu	2, 3, 4
	Australia and New Zealand	3, 4
	Samoa	3, 4
	Solomon Islands	4
Plague (human or rodent)	Colombo	1, 2, 3, 4
	Java (Dutch East Indies)	2, 3, 4
	Hawaii Island	2, 4
	Maui Island	4
Poliomyelitis	San Francisco and Los Angeles	1, 2, 3, 4
	Honolulu, Victoria and N.S.W.	2
	Sydney, N.S.W.	4
Small-pox	Los Angeles	1, 2
	Calcutta and Chinese ports	1, 2, 3, 4
	Victoria, B.C.	2
	Seattle	2, 3, 4
	Colombo	3, 4
	Singapore	2, 4
Malaria	Torres Strait Islands	1,* 2*

Vessels granted pratique, 144 (British, 94; foreign, 50); registered tonnage, 813,195.
Vessels refused pratique, nil
Vessels granted provisional pratique, 3.
Vessels fumigated, 88 (oversea, 15; Fijian, 73).
Vessels from plague infected or suspected ports, 4.
Vessels searched for mosquitoes, 18 (inside harbour, 8; outside harbour, 10).
Vessels fumigated against mosquitoes, 3.
Warning given for vessel going alongside before pratique granted, 1.

Medical inspections.—	1934.		1933.	
Passengers	3,247	(landing, 2,527; through, 720.)	4,052	(landing, 2,518; through, 1,534.)
Crews	2,364		4,153	
Labour	25		194	
Total	5,636		8,399	

Persons placed in quarantine upon arrival from overseas, 334 (Indians).
Persons landed under surveillance or subject to undergoing treatment, 18.
Persons refused permission to land, nil.
Crew not allowed to land, 5.

Quarantine of passengers ex s.s. "Ganges."—The s.s. "Ganges" arrived from Calcutta on 16th August with 334 passengers. After medical inspection, the passengers were transferred to Nukulau Quarantine Island, where they were given anti-helminthic treatment and typhoid inoculation. Quarantine was lifted on 22nd August.

INFECTIOUS DISEASES.

(See Tables I, II and III, appended).

Diphtheria.—Eleven cases of sore throats from which the K.L.B. was isolated in more or less pure culture.

Dysentery.—Thirty-five cases of dysentery were reported from the Suva district. On bacteriological examination of specimens submitted to the Government Bacteriologist the following results were obtained:—Flexner, 6; Sonne's, 5; Shiga, 2; Balantidium coli (isolated in Fiji for the second time), 1; Amœbic, 4. The remaining 17 cases, some of which gave bacteriological negative results, were treated as clinical cases.

Infantine Paralysis.—Two cases of infantile paralysis were notified for the year—1 from Rewa and 1 from Nadi.

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* Epidemic.

Influenza.—As noted above influenza, generally of a mild type, was epidemic during the last quarter of the year. As will be seen from the Tables by far the greater number of cases occurred amongst the Fijians, who provided 70·5 per cent. of the total.

Enteric fever.—Four cases of typhoid fever were reported from Suva district. As will be seen from the accompanying Tables the total incidence for the Colony was 58 cases as compared with 196 cases for 1933.

Infectious disease inquiries made by the Health Office staff in Suva district:—

Visits re pulmonary tuberculosis.. ..	44
Visits re other infectious diseases	75
Total ..	119

Vaccination and Inoculation.—T.A.B. inoculations, 28; Vaccination against small-pox, 11.

FOOD DISEASES.

Dropsy.—Nine cases of dropsy occurred during the year—8 of these at the Suva Gaol (6 Fijians and 3 Indians). The latter occurred in prisoners who had been inmates for two to six months, and the Visiting Medical Officer reports that improvement in their condition commenced within ten to fourteen days of the substitution of bread for rice, the only other alteration of these prisoners' daily routine being, it is understood, very light duties in lieu of their usual work—cutting wood, &c., which however does not involve heavy physical exertion, and to which they were returned in due course, one case temporarily relapsing—the above sequence has been noticed in previous years. Such samples of rice as have been examined, did not appear discoloured as the result of damp or faulty storage, but was inclined to be dusty and broken, it had probably been remilled, and weevils were present. In previous years, these institutional cases have not shown seasonal occurrence though this year, the majority of cases occurred in November-December, which corresponds with our previous epidemic outbreaks among the civil population. Clinically it has not been possible so far to differentiate between institutional and non-institutional cases.

URBAN DISTRICT OF SUVA.

Sanitary Services, Administration of.—Mr. Drury, the Council's inspector, who commenced working under the direction of the Medical Officer of Health in July, 1932, continued to do so until the end of July, 1934. House to house inspection was maintained, and for the period January-July, some 2,500 inspections and reinspections were made—29 written notices and 169 verbal notices were given in regard to sanitary defects. Five certificates of closing orders were forwarded by the Medical Officer of Health to the Town Council in regard to premises in this area.

Common lodging houses and houses let in lodgings.—An inspection was made of these premises one evening by the Medical Officer of Health, with the Sanitary Inspector to the Central Board of Health, and the Council's Inspector. The Common Lodging Houses were not occupied in excess of the number prescribed by regulation, but the majority of the 20 tenements inspected were found to be in an overcrowded condition.

St. John's Melanesian Mission School and Hostel.—An inspection was made of this school and hostel early in the year. Recommendations were made for improved sanitation and lighting, &c. At a subsequent inspection it was found that these recommendations had for the most part been acted upon.

Child Welfare.—In addition to the Childs' Welfare centre at Toorak, committees have been formed, and centres established at Nasese, Lomanikoro, Naiqaqi, Flagstaff and Baininamamumami (near old hospital dairy).

Meetings of the Committees have been called by the Assistant Secretary for Native Affairs, and attended by the Medical Officer of Health when possible. In connection with this work, one morning in each week has been devoted by the Medical Officer of Health, with the Fijian sanitary inspector, to the inspection of houses occupied by Fijians, and following areas have been inspected:—

Area.	*Premises inspected.*
Lomanikoro	19
Naiqaqi	18
Toorak	42
Flagstaff	37
Total ..	116

The attention of the Town Council is drawn to sanitary defects found during these inspections.

Surface clearing and Sanitation of unoccupied Crown Lands in Suva.—A labour gang has been employed during the whole year—the following areas have been cleared and drained where necessary:—

Cakobau Road
Duncan Road
Colonial Hospital
McGregor Road
Knollys Street
Williamson Road
Nasese
Samabula
Walu Bay
Wharf Reclamation
Albert Park
Maafu Street
Domain Road
Leviti Creek
Suva Point
St. Andrews Street.

Pools of stagnant water, &c. have been oiled to stop mosquito-breeding and many loads of empty tins, &c. have been collected and buried.

SUVA RURAL AREA.

House to house inspection in the rural area has been steadily maintained, and 4,152 inspections, and 1,794 reinspections have been made.

Sanitation Suva Point.—As a result of the number of complaints received and inspections made of Suva Point drainage, one man has been employed continuously since February, in clearing drains and outlets and collecting rubbish, &c. A very definite improvement has been made in the sanitation of this area, though the drainage of two sections is as yet inadequate.

Rewa Dairy Company.—Quarterly inspections of these premises, and of the pasteurising plant, and process of pasteurisation have been made by the Central Board of Health's inspectors. Improvement is steadily being made in the general maintenance of the premises. At each inspection, samples of pasteurised milk have been obtained and submitted for chemical and bacteriological tests, the results of these tests have been satisfactory.

Water Supply.—An inspection of wells and water supply of Flagstaff area was made by the Medical Officer of Health in November, and as previously reported the supply is inadequate in quantity, and liable to gross surface contamination.

INSPECTIONS OUTSIDE SUVA.

Visits of inspection in connection with Child Welfare Work, were made by the Medical Officer of Health, in Kadavu and along the Wainikoroiluva tributary of the Navua river in November-December, and the Navua Hotel was also inspected at the request of the Inspector-General of Constabulary.

LEGAL PROCEEDINGS.

Prosecutions.—

Failure to protect wells from contamination	11
Failure to maintain latrines in good order	7
Occupation of dwelling house for which a certificate had been refused	2
Selling milk below standard	6
Being in possession of diseased meat	1
Selling adulterated meat	1
Improper slaughter of beast	1
Failure to keep clean articles used in preparation of food	1
Total fines including costs	£45 7 6

LEGISLATION.

Regulations.—

Quarantine Amendment Regulations 1934—deleting and substituting regulation 30—Quarantine charges.
Pure Food Ordinance—Amending section 26 (3) of Principal Regulations.
Public Hospital Ordinance—amending B of the Schedule—X-ray Fees.

By-laws.—

Dairies and Sale of Milk—Rural Sanitary District of Tailevu.
Dairies and Sale of Milk—Rural Sanitary District of Colo East.
Dealing with Tuberculosis in Dairy herds in Rural Sanitary District of Suva.
Ra (Quorum) 1934.
Ra (Cattle and Swine) 1934.
Ra Rural (Dwelling Houses) 1934.
Ra (Dust Bins) 1934.
Macuata, (Privies) 1934.
Barbers' Shops for Suva urban area made by the Municipal Council.

Notices.—

Public Health Ordinance—Central Board of Health to be Local Authority for Rural Sanitary Districts of Colo East and Tailevu.

Central Board of Health—appointment of Pure Food Inspectors—all Government Medical Officers and Mr. R. R. Kidd, the Town Council's Chief Inspector.

TABLE I.—INFECTIOUS DISEASES—NOTIFICATIONS BY DISTRICTS.

Disease.	Suva Urban.	Suva Rural.	Ba.	Bua.	Colo East.	Kadavu.	Lau.	Lautoka.	Lomaiviti.	Macuata.	Nadi.	Nadroga.	Navua.	Ra.	Rewa.	Savusavu.	Taveuni.	Totals 1934.	Totals 1933.	1934 compared with 1933.
Ankylostomiasis	70	47	5	..	1	1	..	6	11	89	2	4	9	11	67	..	3	326	345	—19
Broncho-Pneumonia	(2)*	3 (5)*	1	1	..	..	1	1	4	5	..	1	..	3	28	..	..	48	52	—4
Chicken-pox	1	7	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	8	4	+4
Diphtheria	5	6	1	..	..	..	..	4	..	..	..	..	..	..	1	1	..	18	17	+1
Dysentery..	17	18 (1)*	92	..	5	..	6	84	2	10	84	19	16	29	15	2	..	399	249	+150
Enteric fever	2 (2)*	2	7	1	..	..	..	1	8	4	9	13	..	8	3	..	..	58	196	—138
Epidemic dropsy	..	8	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	9†	37	—28
Infantile paralysis	..	..	..	..	..	..	..	..	..	..	1	..	..	..	1	..	..	2	2	..
Influenza	59 (1)*	52 (3)*	339	269	1	82	296	16	3	266	..	193	363	..	214	121	..	2,274	750	+1524
Leprosy	3	8	5	..	..	..	..	4	8	5	4	4	2	2	7	..	..	52	36	+16
Measles	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1	..
Pueperal fever	..	1	1	..	..	..	..	..	..	1	..	..	..	..	..	..	..	3	1	+2
Scabies	21	142	43	38	4	2	43	18	38	324	308	401	158	103	111	53	1	1,808	1,935	—127
Scarlet fever	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	4	—4
Trachoma	..	3	3	3	1	..	42	7	7	29	20	9	7	8	12	2	3	156	146	+10
Tuberculosis, pulmonary . ..	18 (8)*	18 (9)*	14	5	5	2	4	25	24	26	29	20	18	20	53	3	5	289	313	—24
Tuberculosis, other forms. ..	3 (1)*	..	5	..	..	..	..	5	1	..	2	..	2	2	2	..	1	23	38	—15
Undulant fever	..	..	..	..	..	..	..	..	..	..	..	.. ..	..	..	..	..	..	..	..	..
Venereal disease	13	10	5	..	1	..	..	8	..	23	3	7	..	12	3	4	..	89	15	+74
Yaws	23	22	67	140	149	10	113	42	54	73	..	489	87	37	163	196	2	1,667	2,249	—582
Totals	235 (14)*	348 (18)*	588	457	167	97	505	221	160	856	462	1,160	662	235	680	382	15	7,230	6,390	+840

* Deaths notified. † 8 cases occurred at Suva Gaol.

TABLE II.—INFECTIOUS DISEASES NOTIFICATIONS (CASES) BY NATIONALITIES.

Disease.	Europeans	Half-castes.	Fijians.	Poly-nesians.	Rotumans.	Indians.	Chinese.	Totals.
Ankylostomiasis	1	3	99	6	1	215	1	326
Broncho-Pneumonia	..	2	39	1	..	6	..	48
Chicken-pox	4	..	1	1	..	2	..	8
Diphtheria	8	..	..	..	..	10	..	18
Dysentery	20	2	102	2	1	271	1	399
Enteric fever	..	..	16	..	..	42	..	58
Epidemic dropsy	..	..	6	..	..	3	..	9*
Infantile paralysis	..	..	..	..	..	2	..	2
Influenza	26	20	1,682	6	2	537	1	2,274
Leprosy	..	..	18	6	..	27	1	52
Measles	1	..	..	..	..	..	..	1
Pueperal fever	..	..	..	..	..	3	..	3
Scabies	1	7	961	8	3	827	1	1,808
Scarlet fever	..	..	..	..	..	..	..	..
Trachoma	1	3	111	..	3	36	2	156
Tuberculosis, pulmonary	1	9	164	1	..	110	4	289
Tuberculosis, other forms	1	2	10	1	..	9	..	23
Undulant fever	..	..	..	..	..	..	..	..
Venereal diseases	8	3	6	..	..	69	3	89
Yaws	..	6	1,635	8	4	14	..	1,667
Totals	72	57	4,850	40	14	2,183	14	7,230

*8 cases occured at Suva Gaol.

TABLE III.—INFECTIOUS DISEASES—MONTHLY INCIDENCE (CASES).

Disease.	Area.	Jan.	Feb.	Mar.	April.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Totals.	
Ankylostomiasis	A	5	28	15	2	8	..	7	3	1	1	..	..	70	326
	B	7	11	5	6	4	..	4	..	3	3	4	..	47	
	C	12	15	23	25	11	17	23	21	12	17	20	13	209	
Broncho-pneumonia.	A	..	..	..	..	..	..	..	..	..	..	..	..	..	48
	B	..	..	..	..	..	..	..	..	..	3	..	..	3	
	C	5	5	1	5	1	2	1	2	1	10	10	2	45	
Chicken-pox	A	1	..	..	..	..	..	..	..	..	..	..	..	1	8
	B	..	..	..	..	..	..	1	3	..	1	2	..	7	
	C	..	..	..	..	..	..	..	..	..	..	..	..	..	
Diptheria	A	1	..	..	..	..	..	..	1	1	2	..	..	5	18
	B	..	..	..	5	..	..	..	1	..	..	..	..	6	
	C	1	..	3	1	..	1	1	..	..	..	..	..	7	
Dysentery	A	2	4	4	3	1	..	1	..	1	1	..	..	17	399
	B	..	2	4	..	..	1	1	..	1	..	3	6	18	
	C	63	89	34	27	20	15	26	26	19	14	8	23	364	
Enteric fever	A	..	..	1	..	..	..	..	..	..	1	..	..	2	58
	B	..	..	..	2	..	..	..	..	..	..	..	..	2	
	C	8	4	10	2	8	6	2	1	1	2	7	3	54	
Epidemic dropsy	A	..	..	..	..	..	..	..	..	..	..	..	..	..	9*
	B	..	..	..	..	..	..	..	..	..	..	2	6	8	
	C	..	..	..	..	..	..	..	..	..	1	..	..	1	
Infantile paralysis	A	..	..	..	..	..	..	..	..	..	..	..	..	..	2
	B	..	..	..	..	..	..	..	..	..	..	..	..	..	
	C	1	..	1	..	..	..	..	..	..	..	..	..	2	
Influenza	A	..	..	..	..	..	..	..	..	5	52	2	..	59	2,274
	B	..	..	..	..	..	..	..	..	7	44	1	..	52	
	C	32	8	25	93	205	59	15	9	12	1,274	304	127	2,163	
Leprosy	A	..	2	..	..	..	1	..	..	..	..	..	..	3	52
	B	1	1	..	..	..	2	..	3	1	..	..	..	8	
	C	2	7	4	1	..	6	9	1	3	5	..	3	41	
Measles	A	..	..	..	..	..	..	..	..	..	..	..	..	..	1
	B	..	..	..	..	..	..	..	1	..	..	..	..	1	
	C	..	..	..	..	..	..	..	..	..	..	..	..	..	
Pueperal fever	A	..	..	..	..	..	..	..	..	..	..	..	..	..	3
	B	..	..	1	..	..	..	..	..	..	..	..	..	1	
	C	..	..	..	..	1	..	..	..	..	..	..	1	2	
Scabies	A	6	10	3	..	2	..	..	..	..	..	..	..	21	1,808
	B	20	24	29	39	29	..	..	..	..	1	..	..	142	
	C	127	170	140	194	94	89	152	142	100	158	194	85	1,645	
Scarlet fever	A	..	..	..	..	..	..	..	..	..	..	..	..	..	..
	B	..	..	..	..	..	..	..	..	..	..	..	..	..	
	C	..	..	..	..	..	..	..	..	..	..	..	..	..	
Trachoma	A	..	..	..	..	..	..	..	..	..	..	..	..	..	156
	B	..	3	..	..	..	..	..	..	..	..	..	..	3	
	C	13	16	21	33	12	9	11	3	9	8	6	12	153	
Tuberculosis, pulmonary.	A	7	3	1	1	1	1	1	..	..	1	2	..	18	289
	B	2	3	1	2	..	..	3	1	1	2	1	2	18	
	C	28	20	16	21	23	17	26	16	18	41	10	17	253	
Tuberculosis, other forms.	A	3	..	..	..	..	..	..	..	..	..	..	..	3	23
	B	..	..	..	..	..	..	..	..	..	..	..	..	..	
	C	3	4	2	..	5	2	..	1	1	1	1	..	20	
Undulant fever	A	..	..	..	..	..	..	..	..	..	..	..	..	..	..
	B	..	..	..	..	..	..	..	..	..	..	..	..	..	
	C	..	..	..	..	..	..	..	..	..	..	..	..	..	
Venereal disease	A	2	1	2	..	..	..	1	..	5	1	1	..	13	89
	B	2	2	2	..	..	..	..	..	2	..	2	..	10	
	C	2	12	7	10	3	5	3	4	11	..	5	4	66	
Yaws	A	8	5	6	..	4	..	..	..	..	..	..	..	23	1,667
	B	..	4	2	14	2	..	..	..	..	..	..	..	22	
	C	69	79	132	142	234	134	138	113	103	188	184	106	1,622	
Totals	..	433	532	495	628	668	367	426	352	318	1,832	769	410	7,230	7,230

*8 cases occured at Suva Gaol. A—Suva Urban Area. B—Suva Rural Area. C—Country Districts.

REPORT BY Dr. T. CLUNIE, MEDICAL SUPERINTENDENT, COLONIAL WAR MEMORIAL HOSPITAL

The Hospital is a two-storeyed ferro-concrete building on a site commanding a fine view of Suva Harbour. A partial third storey consists of the kitchen and annexes built in this position to avoid in the wards the heat and odours associated with kitchens. An electric lift is installed for the conveyance of patients. Lifts are also installed for the conveyance of food from the kitchen to ward blocks.

Staff.—The Hon. V. W. T. McGusty was consulting medical officer to the Hospital during the absence on leave of the Chief Medical Officer, the Hon. Dr. A. H. B. Pearce. The Medical Superintendent is also Physician and Surgeon. The Assistant Medical Superintendent is Medical Officer in charge of the Out-patient Department, is Radiologist, and has charge of a native medical ward. Dr. C. H. B. Thompson is consulting ophthalmic surgeon to the hospital. The Dispenser, who is a graduate of the Native Medical School, Suva, is also anæsthetist.

Office Staff.—The European Clerk and Steward is assisted by a Native Clerk who is also telephone switch-board operator.

Nursing Staff.—This consists of the Matron, Assistant Matron, four Graduate Staff Nurses and one Native Obstetric Staff Nurse. There are 13 European probationers and 20 native obstetric nurse pupils. The Europeans are trained for a qualification which entitles them to practise the profession of nursing throughout the British Empire, the natives for a local qualification.

Medical Students.—The third and final year students of the Central Medical School, Suva, act as dressers and male nurses, in addition to taking periods of training in the dispensary, eye department, and post-mortem theatre. Their training is essentially practical.

Post-Graduate Courses.—Native Medical Practitioners who have been over five years in practice, or specially selected practitioners, may take these courses, which extend to six months or longer, and during which the graduates act as house surgeons, house physicians, and casualty officers. They also attend lectures and clinics at the Medical School and Hospital. These refresher courses are of value in maintaining a high standard of efficiency in the Native Medical Practitioner Services. Graduates from all the British South Pacific Groups which participate in the Central Medical School organisation may take the course.

Co-operation between School and Hospital.—The Medical Superintendent is responsible for this. During the latter part of the year there were only two students for training in junior subjects in the school, owing to the transition from a three year to a four year course of training. These students were given practical work in the Hospital pending the commencement of their classes in January, 1935. The tutor proceeded on leave in July, 1934, and the Medical Superintendent took over his administrative duties.

Teaching Staff.—The following was the list of lecturers and demonstrators in connection with the training of the senior students of the Central Medical School, of European Nurses, under the A.T.N.A. Regulations, and of Native Obstetric Nurses:—

Anatomy and Physiology for Nurses	The Chief Medical Officer.
Obstetrics for Students	The Chief Medical Officer.
Surgery, Systemic and Clinical	The Medical Superintendent.
Medical and Surgical Nursing	The Medical Superintendent.
Clinical Obstetrics	The Medical Superintendent.
Medicine, Systemic and Clinical	Assistant Medical Superintendent.
Hygiene and Materia Medica for Nurses	Assistant Medical Superintendent.
Public Health	Dr. S. M. Lambert, Rockefeller Foundation.
Anæsthetics	Dr. I. H. Beattie, & the Hospital Anæsthetist.
Dentistry	Dr. Hart.
General Nursing	The Matron.
Obstetrics for Native Nurses	The Obstetric Sister.
Ophthalmology	Dr. C. H. B. Thompson.
Bacteriology	The Government Bacteriologist.
Materia Medica	The Dispenser.
Hospital Accountancy	The Clerk and Steward.

Anæsthetics.—The Dispenser acts as Hospital anæsthetist. Dr. Beattie continued his lectures and practical demonstrations in anæsthetics in connection with the training of medical students.

The following is the list of the anæsthetics used:—general (Chloroform and ether or ethyl chloride and ether), 513; gas and oxygen, 4; ethyl chloride, 146; rectal, 2; local and regional, 238; spinal, 38; intravenous evipan, 1; total, 942.

Clinical Meetings.—Clinical meetings of the local branch of the British Medical Association were held at the School through the courtesy of the Chief Medical Officer and the Tutor. Dr. Beattie lectured on medical etiquette; the Medical Superintendent demonstrated clinical cases.

Gold Medals.—The local branch of the British Medical Association donated a gold medal to the Central Medical School to be presented annually to the most proficient student in Surgery. The Hon. A. H. B. Pearce, Chief Medical Officer of the Colony, donated a gold medal to be presented to the Fijian student most proficient in Obstetrics and Infant Welfare.

X-Ray Department.—The work of this Department continued to increase and the public is taking full advantage of the new plant so generously donated by Sir Henry Marks, towards the end of 1933. The use of radio-opaque substances for diagnostic assistance in diseases of the gall-bladder and urinary tract is steadily increasing. Intravenous pyelography is of particular importance in the Tropics, as the use of retrograde pyelography is limited owing to the difficulty of preserving delicate ureteral catheters. The Department was in charge of Dr. R. J. Snodgrass during the first eight months of the year. Dr. Snodgrass was succeeded by Dr. R.W.D. Maxwell, whose report is attached. Mr. F. A. Taylor rendered satisfactory service as Technician.

A portable plant for use in the wards in the case of difficult fractures and patients too ill to be moved would make the X-Ray Department an almost complete unit of its kind for diagnostic work and indication of the progress of cases. The hospital does not possess a therapeutic unit, and radium is unfortunately not available.

Beds and Cots.—Beds, 130; cots in Hospital, 23; cots in Orphanage, 5.

Eye Department.—I attach Dr. Thompson's report. Sisters Hughes and Rial, are to be commended for their Theatre work in this Department. The students, realising the importance of eye-work in the tropics, appear to take a keen interest in the work. Six beds are available for males, and two or four, according to available accommodation for females The Eye Out-patient Department, like that of the Medical and Surgical Out-patient Department, is cramped.

Obstetric Ward.—The work of the year was shared by Sisters Hughes, Rial and Brahne. Sister Rial, the Obstetric Sister writes, as under:

" Births numbered 200, an increase of 25 as compared with 1933. One hundred and seventy-six were normal cases; 3 cases of Breech Presentation; 2 sets of twins; 8 infants were stillborn, two being instrumental. Five infants showed Blue Asphyxia and one white Asphyxia. All were successfully resuscitated. Twenty-three patients had perineal tears, sutured and healed by first intention with the exception of one. There were five instrumental deliveries which were mostly cases brought from the country and which had been in labour many hours; 4 post-partem Hæmorrhages; 1 case of Episiotomy. There were two deaths; one an elderly multipara in an exhausted condition with pulse almost imperceptible, one from the country with prolapsed arm in a very young primipara. One Face Presentation delivered a living infant; two Cæsarean sections, both discharged later with infants. Two cases of Retained Placenta manually removed.

" *Races of Patients in Ward.*—Two Europeans, 26 half-caste Fijians, 1 half-caste Samoan, 85 Fijians, 2 Tongans, 2 Samoans, 1 New Hebridean, 2 Ellice Islanders, 2 Gilbertese, 1 Wallis Islander, 74 Indians and 2 Rotumans."

The avialable staff does not allow of a whole-time Obstetric Sister. The Obstetric Sister takes duty in surgical and medical wards and is assisted or relieved by other double-certificated sisters whose main tour of duty is in surgical and medical wards.

The fact that no cross infection has occurred is probably a tribute to the care and high standard of the obstetrical technique of the Sisters concerned.

Ante-Natal Clinic.—It is difficult to say what is responsible for the poor response to the call to this clinic. Septic abortions continue to be admitted and mothers and infants are lost without in any way causing a stir of interest in the clinic. The fault may be with the Native Obstetric Staff Nurse and the Native and Indian Practitioners in the out-patient Department, showing little interest in the clinic, and in health and Infant Welfare workers not sufficiently stressing the importance of ante-natal work. More probably it is due to the apathy of the natives and to a fancied interference with native customs. The late Ratu Joni Mataitini, who was a leading Chief and a graduate of the Old Fiji Medical School, told me in 1933, the year of the introduction of the clinic, that I need not expect any great interest to be taken in the clinic for at least five to ten years, unless something dramatic could be staged. There were 17 attendances during the year. 2 Indians, 5 Half-castes, 1 Tongan, 9 Fijians.

Routine Examination.—Routine examinations carried out throughout the year on stools from Hospital patients by the Bacteriological Department disclosed:—

Parasites.	*Per cent. Infected.*
Hookworm	24·3
Ascaris	7·7
Trichuris	7·3
Oxyuris	2·8
Trichostrongylus	1·4

All cases received treatment.

Apart from the importance of treatment of the cases such a routine method should in time provide a useful incidence map for the use of health authorities.

Attendances at the Out-patient Department during 1934.—

Europeans	1,220
Fijians	6,071
Indians	9,697
Others	2,947
Total	19,935

In-patients.—

Europeans	373
Fijians	693
Indians	984
Others	349
Total	2,398

A list of diseases is attached.

Surgical Procedures in Operating Theatre, Out-patient Theatre and Wards totalled, 2,898. A list of operations is attached.

Medical and Surgical Wards.—These had a busy and successful year. Several cases of whooping cough were admitted from the Boys' Grammar School. The use of pertussis vaccine prophylactically and therapeutically appeared to be of definite value but the series was not large enough for the use of controls.

Blood Transfusion.—Twelve transfusions were carried out. Two prospective transfusions did not take place owing to lack of Indian donors.

There is no dearth of European donors and every appeal is met with an immediate reponse. The Honourable the Secretary for Native Affairs has been most helpful in bringing before the natives the importance of a transfusion service.

Indian donors can usually be secured after a good deal of delay. They are, in most cases, willing to give blood to relatives or friends but will not consider membership in a transfusion service.

I am indebted to Mr. J. G. C. Campbell, Government Bacteriologist, for his continued help in connection with blood transfusion.

Appendicitis.—Five cases of acute appendicitis occurred in Natives.

Nursing Changes.—Matron Pankhurst resigned on 30th March, 1934. Matron L. M. Lea, seconded from the New Zealand Nursing Service, commenced duty on the 16th November, 1934.

Sister E. F. Hughes acted as Matron during the interval. Sister Hughes and the Sisters under her control are to be commended on the manner in which they carried on during a difficult period of staff shortage.

Board of Visitors.—The Board regularly visited the hospital. The members stressed the great need for a children's ward.

Visitors.—The following eminent men visited the Hospital and School during the year:—Dr. Victor G. Heiser of the Rockefeller Foundation; Professor Barr, Professor of Medicine, Washington University; Professor MacCallum of Melbourne University. Among lay visitors were Sir Henry Marks, who has been a great benefactor of the Hospital since its inception, Mr. J. M. Martin of the Colonial Office, and Major Boose, of the Royal Empire Society.

Appreciation.—The zeal and co-operation displayed in the interests of the Hospital from the Chief Medical Officer and the Acting Chief Medical Officer downwards is greatly appreciated.

The nursing staff and students have rendered loyal and devoted service throughout the year.

REPORT BY Dr. R. W. D. MAXWELL, ASSISTANT MEDICAL SUPERINTENDENT, ON THE X-RAY DEPARTMENT AT THE COLONIAL WAR MEMORIAL HOSPITAL.

I HAVE the honour to submit the following report on the X-ray Department, Colonial War Memorial Hospital for the year ending 31st December, 1934.

2. During the first 8 months of the year the department was in the charge of Dr. R. J. Snodgrass, and I assumed duty from him at the end of August.

3. The year was a busy one, a total of 1,025 patients in all being examined. Among this number 1,223 films were exposed and 263 screen examinations were made.

4. The following table shows the details of the various regions examined:—

	1932.	1933.	1934
Bones and joints	..	..	452
Skulls—(including dental radiography)	..	..	11
Chests	..	..	139
Abdominal Viscera—(excluding special methods as below)	..	..	67
Barium Meals	96	109	193
Barium Enemata	2	6	17
Intravenous Pyelography	6	9	12
Cholecystography	2	2	30

5. The steady increase in the number of patients being dealt with in the department each year is shown by the fact that in 1931, 444 patients were examined; in 1932, 651; in 1933, 749; and in 1934, 1,025. As shown in the above table this is to some extent due to the increased use which is being made of special methods of radiographic examination. In fact this part of the work was exactly double that of the previous year, 252 cases being examined as against 126 in 1933. For Pyelography, Uroselectan by intravenous injection is still being used, while for Cholecystography, Opacol by oral administration has replaced the earlier use of Opacin intravenously, the technique being simpler and the results equally satisfactory.

6. This wider application of the various methods of examination of abdominal viscera by the administration of radio-opaque substances has largely been made possible by the installation of the new X-ray plant donated to the Hospital by the Hon. Sir Henry Marks. This was first used towards the end of 1933 and has been in constant use during the year under review. It has been of very great value in improving the standard of X-ray diagnostic work attainable.

7. The old plant has still been used for dental work and some fracture cases. Its conversion to a portable unit, as has been proposed, would be a most valuable addition to our equipment as this would overcome the difficulties which arise in the case of patients who cannot be removed from their beds. In such cases the taking of films in the Wards without undue movement of the patient would be a very big advantage as these patients often present problems in the matter of transporting them to the X-ray room.

8. Mr. F. A. Taylor has continued to render good service as X-ray Technician and has maintained a high standard of work.

REPORT ON CENTRAL MEDICAL SCHOOL, SUVA.

By Dr. T. Clunie, Medical Superintendent, Colonial War Memorial Hospital.

This year marked the completion of the transition period from a three to a four-year course, the graduates of to-day being the first to receive Certificates under the four-year course of training.

The following is the number of students in training during the year for work with their various Administrations:—

Fiji	18	Cook Islands	1
Western Samoa	4	Solomon Islands	3
Tonga	4	New Hebrides	1
Eastern Samoa	1		—
Gilbert and Ellice	4	Total	36

Lecturers.—Dr. Pearce's lectures were delivered by Dr. V. W. T. McGusty on account of Dr. Pearce's absence on leave. Dr. Snodgrass succeeded Dr. Neff and Dr. Borg as lecturer in Diseases of Children. The Medical Superintendent and the Assistant Medical Superintendent delivered the usual lectures in systematic and clinical Surgery and Medicine, Dr. Maxwell succeeding Dr. Snodgrass. Lectures in Public Health were delivered by Dr. Lambert, and in Ophthalmology by Dr. Thompson. Lectures in Materia Medica were delivered by I.M.P. Samson Deoki and N.M.P. Filikesa Ramaqa. The Tutor, Mr. D. W. Hoodless, proceeded on leave in July. Dr. Beattie and Dr. Hart, both busy practitioners, took great interest in the teaching of their respective subjects, Anæsthesia and Dentistry.

N.M.P. Journal.—No. 1 issue of Volume 2 of the *Native Medical Practitioner* was published in February, 1934, no less than fifteen articles being written for this issue by Native and Indian Medical Practitioners from Rotuma, Samoa, Fiji, Solomon Islands and Tonga. European contributors were Dr. Lambert, Dr. Beattie, Dr. Denovan of Suva, and Dr. Wenzell, Chief Medical Officer of American Samoa. No. 2 issue of this Volume is in course of preparation. An interesting contribution is " Treatment Notes of the Common Ear Diseases in the Pacific " received from Lt.-Commander Ben Hollander, M.C., United States Navy. Most of the other contributors are Native Medical Practitioners. This Journal continues to be an important medium in conveying latest methods of diagnosis and treatment to Native Medical Practitioners in the more out-lying parts of the various Administrations.

Fijian Medical Practitioners in other Administrations.—Encouraging reports have been received from the Resident Commissioner in the New Hebrides regarding the work of Native Medical Practitioners Mesulame Taveta and Peni Tuidraki. The report of Mr. Joy, the Commissioner, concerning Mesulame concludes:—" His work reflects considerable credit on the Central Medical School." Good reports have also been received concerning Native Medical Practitioner Malakai Ravai in the Solomon Islands.

Infant and Child Welfare.—Senior Students and Post-Graduates have continued their visits to villages near Suva under the direction of the Acting Chief Medical Officer, Dr. V. W. T. McGusty. Dr. Pearce, Chief Medical Officer, and Dr. McGusty have both consistently advocated the adoption of Infant Welfare work and they have received the continued support of the Colonial Secretary and the Secretary of Native Affairs. Native Medical Practitioners Ratu Vakaruru and Ratu Mara are to be particularly commended for their work carried out under Dr. Pearce and Dr. McGusty during their Post-Graduate courses.

Sports—Rugby Football.—The Sports Club of the Central Medical School had a successful year, winning nine matches out of fourteen played and gaining second position in the Rugby Shield competition. The sports committee is greatly indebted to Mr. J. Baird of Suva, who acted as Trainer of the School team. The students earnestly hope that Mr. Baird will continue his honorary services. Three of the School players were selected for the 1934 Rugby Tongan tour.

Cricket.—It has been impossible, largely owing to expense and lack of ground facilities, to reach in cricket the high standard attained in Rugby. Friendly matches were played with Native and Indian teams. The honorary services of a cricket coach would be greatly appreciated.

Discipline.—It was found necessary to cancel the studentships of two students for misconduct, while one student was reduced from a fourth to a third-year for misconduct. The studentship of a student entered from American Samoa was cancelled because he was not considered to be the type suitable for training as a Native Medical Practitioner. There were no first and second year students requiring instruction during the latter half of the year. The Tutor's duties other than those of school-teaching were taken over by the Medical Superintendent.

Donation of Books to the Library.—A gift of 1,000 ℔ in weight of books has been promised to the Library from the New York Academy of Medicine through Dr. Frederick Peterson, who several years ago presented several cases of books to the school.

School Extension.—The teaching of Pathology at the Central Medical School has never been placed on a scientific basis owing to lack of facilities. The Medical Superintendent has with Dr. Lambert advocated for some years the extension of the existing School building.

Dr. Lambert, representative in the Pacific of the Rockefeller Foundation, has lately announced that the sum of £2,200 has been allocated by the Foundation for this proposed extension. It will consist of a post-mortem theatre and a pathological laboratory. The teaching of Pathology forms an important part of the medical curriculum, but quite apart from this, the foundation of a pathological laboratory ensures facilities for research into the cause and incidence of disease conditions in the Pacific. This generous gesture on the part of the Rockefeller Foundation will in time have far-reaching effects in the maintenance of the health of the Native races in the Pacific. One has but to mention tuberculosis to realise the importance of this very definite step forward which is largely due to the able advocacy of the question by Dr. McGusty during the recent visit of Dr. Heiser to this Colony.

Students' Council.—The institution of a Council which might assist the Medical Superintendent and the Tutor in the maintenance of a high standard of conduct, and which might investigate breaches of discipline and generally advise the Advisory Board of the school, has been mooted for some time. The Council was elected this year largely by the efforts of the Tutor. A member is elected from the students of each Administration. This Council has already been of great assistance and it is anticipated that it will play an important part in the maintenance of the welfare of the students.

CLASS PRIZE WINNERS FOR 1934.

Second year.

Chemistry	I. L. Fonua (Tonga).
Physics	H. Wheatley (Solomon Is.).
Biology	H. Wheatley (Solomon Is.).
Anatomy	W. T. Fonmoa (Rotuma).
Physiology	T. Vakatawa (Fiji).

Third year.

Anatomy	J. Niumeitolu (Tonga).
Physiology	J. Niumeitolu (Tonga).
Medicine	E. Macu (Fiji).
Surgery	E. Macu (Fiji).
Anæsthetics	J. Numa (Cook Is.).
Materia Medica	J. Niuemeitolu (Tonga).

Fourth year.

Medicine—First prize	Alokihakau Eva (Tonga).
Second prize	Iputi Sosene (Samoa).
Surgery—First prize	Alokihakau Eva (Tonga).
Second prize	Iputi Sosene (Samoa).
Obstetrics	Alokihakau Eva (Tonga).
Anæsthetics	Anesi Mavaega (Samoa).
Diseases of Children	Anesi Mavaega (Samoa).
Materia Medica	Alokihakau Eva (Tonga).
Public Health	Alokihakau Eva (Tonga). Lusi Fakaofo (Ellice Is.).
Diseases of the Eye	Alokihakau Eva (Tonga). Iputi Sosene (Samoa).

Special prize donated by His Honour the Chief Justice, Sir Maxwell Maxwell-Anderson to the most proficient Fijian student, Tomu Uluilakeba (Fiji).

Special prize donated by Dr. T. Clunie for the best Fijian student in surgery, Tomu Uluilakeba.

NEWLY QUALIFIED NATIVE MEDICAL PRACTITIONERS.

The following students have passed their final examinations in all subjects:—

Alokihakau Eva	Tonga.	Ieni Semantafa	Fiji.
Iputi Sosene	Samoa.	Mesulame Ravuki	Fiji.
Anesi Mavaega	Samoa.	James Ram Prasad	Fiji.
Tomu Uluilakeba	Fiji.		

Lusi Fakaofo passed in all subjects except Medicine.

Peni Vuidreketi passed in all subjects except Medicine, Surgery and Materia Medica.

POST-GRADUATE CERTIFICATES.

N.M.P. Fatu Atoa	Samoa.	N.M.P. Filikesa Ramaqa	Fiji.
N.M.P. Ratu Mara	Fiji.	N.M.P. Henry Vakaruru	Fiji.

GOLD MEDALISTS FOR 1934.

Sir Maynard Hedstrom's gold medal in Public Health has been awarded to Mesulame Ravuki of Fiji.

The Hon. Alport Barker's gold medal in Medicine has been awarded to Alokihakau Eva of Tonga.

The British Medical Association's gold medal in Surgery has been awarded to Alokihakau Eva of Tonga.

Sir Henry Scott's gold medal in Anatomy has been awarded to Wilson T. Fonmoa of Rotuma.

The Hon. Dr. Pearce's gold medal in Obstetrics and Infant Welfare has been awarded to Alokihakau Eva of Tonga.

EXAMINERS IN FINAL AND GOLD MEDAL EXAMINATIONS.

Materia Medica	Dr. McGusty, Dr. Clunie, I.M.P. Samson Deoki.
Public Health	Dr. Lambert, Dr. Snodgrass, Dr. Clunie.
Surgery	Dr. Lambert, Dr. McGusty, Dr. Maxwell, Dr. Clunie.
Medicine	Dr. McGusty, Dr. Snodgrass, Dr. Clunie.
Obstetrics	Dr. McGusty, Dr. Clunie, Dr. Maxwell.
Anatomy and Physiology	Mr. Hoodless, Dr. Clunie.
Physiology	Mr. Hoodless, Dr. Snodgrass.
Anatomy (Gold Medal)	Dr. McGusty, Dr. Clunie, Mr. Hoodless.

Visitors.—There were 54 visitors during the year. Well-known medical visitors were: Dr. V. G. Heisor of the Rockefeller Foundation; Dr. C. L. Park of the League of Nation Bureau Singapore; Professor Barr, Professor of Medicine Washington University; and Dr. Weston Price of Cleveland, a well-known American Dentist, visited the school and later very kindly contributed a formula for the treatment of Pyorrhœa for insertion in The *Native Medical Practitioner Journal*. Mr. Martin of the Colonial office also visited the School. Among prominent local visitors were Sir Henry Marks and His Honour C. Murray-Ainsley, Chief Justice of Tonga, and Dr. Hunt, Chief Medical Officer of British Samoa.

General.—Four meetings of the School Advisory Board were held during the year. There were two gold medals donated during the year, one for Surgery by the local branch of the British Medical Association, and the other by the Hon. Dr. Pearce, the Chief Medical Officer, for Obstetrics and Infant Welfare. The students are all doing hospital duty and continue to give loyal and devoted service. The relations between school and hospital continue to be cordial.

REPORT BY J. G. C. CAMPBELL, GOVERNMENT BACTERIOLOGIST, ON THE WORK OF THE BACTERIOLOGICAL LABORATORY.

I HAVE the honour to submit the following report on the work of the Bacteriological Laboratory for the year ending 31st December, 1934.

2. The number of routine specimens recorded for the year was 4,480; the T.A.B. vaccine required for the Colony was prepared in the laboratory during the year.

3. During the absence on leave of the Government Chemist, the Bacteriologist was gazetted as a Government Chemist and Analyst, and, in that capacity, carried out several chemical examinations in connection with police prosecutions.

4. *Contagious Abortion Vaccine.*—At the request of the Senior Veterinary Officer of the Agricultural Department, a prophylactic vaccine for use against bovine contagious abortion in an infected district was prepared. The vaccine is a living one and consists of a suspension in normal saline of liver agar cultures of a strain of *Brucella abortus* virulent to the guinea-pig. The suspension is standardized by means of Brown's opacity tubes to contain 10,000 million organisms per cubic centimetre and the vaccine is administered subcutaneously as a single dose of 10cc. One hundred and seventy beasts were inoculated. The Government Veterinary Officer deals with the control of contagious abortion in his Annual Report for 1934 to the Director of Agriculture.

5. *Blood Transfusion Service.*—In co-operation with the Medical Superintendent of the Colonial War Memorial Hospital, an attempt was made to establish a voluntary blood transfusion service. In the past, it has been necessary to call for donors for each patient. In a few cases, none was obtainable; in others, a dozen or even more would offer themselves. More frequently, the volunteers come singly or in pairs, and, as often as not, are incompatible, necessitating a further appeal for donors, and causing a delay of three or four days before a suitable one is found. Then, when the transfusion is to be performed, the selected one may be missing. No difficulty is experienced with Europeans, but the other races are a source of worry on these occasions. To overcome those difficulties, a scheme was drawn up for a blood transfusion service on the usual lines. Races and religions (in the non-European races) were kept separate, and volunteers were to be used only for recipients of their own race and religion. Appeals were made for volunteers through the Indian and Native Departments. Twelve Fijians offered themselves, but there was no response to the letters sent out by the Indian Department. This is the present position, and no success can be claimed for the attempt to establish this voluntary service.

6. *Medico-legal.*—Seventeen exhibits were submitted by the Police Department for the detection of human blood stains. Human blood was detected on one exhibit. The precipitin test was employed for the first time in the history of the Colony. The importation of rabbits into the Colony, even for scientific purposes, is prohibited by the Government so that these animals were not available for the production of a precipitating serum. Domestic fowls (male) were therefore employed. The results were satisfactory, but, from a practical views point, rabbits are preferable, despite their susceptibility to anaphylactic accidents.

7. *Milk Examinations.*—Weekly examinations were made of pasteurized milk supplied by a local company. The technique of the American Public Health Association was used.

8. *Water Examinations.*—Weekly examinations were made of the 8-inch main of Suva water supply. The results are appended. The bacteriological quality of the water, as judged from these examinations, shows no change. A few samples were examined from the new shipping main, the results of which were satisfactory. This supply is stored in an open shallow reservoir and, as the capacity of the latter is large in relation to the demand, the water is subjected to prolonged storage under the influence of tropical sunlight, the beneficial effect of which one would expect to find indicated by a high bacteriological standard of purity.

9. *Dysentery.*—Two hundred and forty-six stools were examined for dysentery organisms.

Early in the year, it was decided to attempt to determine the seasonal incidence and distribution of the various bacteriological types of dysentery in the Colony. Specimen bottles containing the glycerine and saline mixture of Teague and Clurman were distributed to all District Medical Officers and to Native Medical Practitioners who were working in districts not under the control of the former. A circular was also sent explaining briefly the object in view and the method of collecting specimens. The response was very satisfactory and I am indebted to my colleagues for their assistance. The results of the examinations were also satisfactory, considering that this is the first occasion on which any such investigation has been attempted. The percentage of positive specimens received varied with the district and such variation was dependent, to some extent, at least on the degree of adherence to the instructions issued. This was exemplified recently when specimens from an epidemic of Shiga dysentery were consistently negative. A letter was sent drawing attention to the important points and the positives immediately increased from nil to 40 per cent. A copy of the instructions, which were written more particularly for Native Medical Practitioners, is appended for record and for the information of those interested. Specimens received from epidemic districts yield about 40 per cent. positives; this compares very favourably with the results obtained from fresh specimens received from the hospital and proves the value of the glycerine preservation method and the feasibility of submitting specimens of this nature from the distant parts of the group. The specimens are often four or five days old when received, and successful examinations have been made of specimens nine days old.

The year's work in this direction has been more or less experimental but now that the ground has been broken, it is hoped that, in forthcoming years, specimens from dysentery and diarrhœal cases, will be submitted from all districts, and that these will be accompanied by information which will serve as useful epidemiological data, without which the bacteriological results have very little value. It would be foolish to attempt to draw any conclusions from the results of a few specimens—that can only be done after some years—but one might anticipate that Shiga dysentery will be found to be endemic; that the periodic epidemics are endogenous and that endemic foci exist which can be controlled; and therefore that economic losses due to the disease can be considerably reduced.

10. *Enteric.*—Fifty-six agglutinations and blood cultures, 6 urines and 97 stools were examined in connection with this group. The requirements of the Colony for prophylactic vaccine were fulfilled, as previously mentioned. As in previous years, *Bact. typhosum* was the only organism implicated. No further isolations have been made of the *Salmonella* referred to in the last year's report.

11. *Helminthiasis.*—The routine examination of patients in the Colonial War Memorial Hospital was continued. I have not been able to classify the results as in my previous report, but the following are the percentages for all races.

Parasite.	*Per cent. infected.*
Hookworm	24·3
Ascaris	7·7
Trichuris	7·3
Oxyuris	2·8
Trichostrongylus	1·4

The total number of these specimens examined was 1,500.

12. *Pathological Examinations.*—The pure pathological work required by the Colonial Hospital is carried out by Dr. Hoodless, Tutor of the Central Medical School. During the year a co-operative arrangement was made whereby sections from pathological tissues were prepared in this laboratory, for examination by Dr. Hoodless.

13. *Examination of Rats.*—Rats collected by the Municipal rat catcher are submitted to this laboratory for examination for plague and are conscientiously opened and inspected—though no plague has ever been reported in the Colony. It is a point of academic interest that a very high percentage of the rats examined are affected with coccidiosis. Arrangements were made to have rats brought in alive and, when opportunity offered, fleas were collected from them for identification. *Ctenocephalus canis* and *Xenopsylla cheopis* were the only species recorded. A few dark ground microscopic examinations were made of the kidneys of the freshly killed rats for the *Leptospira* but with negative results. There is no evidence that Weil's disease occurs in Fiji, but the association of disease with rats, the cosmopolitan distribution and numerous local population of these animals, and the unexpected occurrence of the infectious jaundice in different places, *e.g.*, the recent epidemic in a Queensland cane growing district, would justify a *Leptospira* survey of the rats in Fiji.

14. *Country Specimens.*—During the year, an increased number of specimens was received from the District Medical Officers and Native Medical Practitioners—apart from the dysentery specimens which were specially requested. One of the objects of the laboratory has been to assist country practitioners as far as circumstances will permit, and it is gratifying to realise that this is gradually being achieved.

15. *A new Laboratory.*—Towards the end of the year, an announcement was made that the Rockefeller Foundation would provide the sum of £2,200 for the provision of a laboratory for the teaching of pathology and bacteriology in connection with the Central Medical School. It is proposed by the Government to incorporate this laboratory with the new one. I have not been supplied with any detailed information regarding this latter proposal, but if carried out, it may have a profound influence on the future of this laboratory. It is hoped that, at least, it will provide some improvement on deplorable conditions under which the work is now being carried on, which I am precluded from mentioning in these reports, and that the very serious deficiencies which at present exist, *e.g.*, the lack of a refrigerator, accommodation for experimental animals, &c., will be rectified.

APPENDIX I.

Summary routine examinations performed in the Bacteriological Laboratory during the year 1934:—

Fæces—	
Bacteriological (dysentery, enteric and food poisoning)	343
Ova	1,500
Chemical, occult blood	1
Blood—	
Agglutination, for enteric	56
Cultures	37
Chemical, Sugar	30
Chemical, Calcium	1
Compatibility tests	93
Counts	42
Kahn tests	479
Pus, for gonococci	124
Throat swabs, for K.L.B. and/or streptococci	122
Urines (bacteriological, microscopic and chemical)	83
Sputa, for T.B.	267
Autogenous vaccines	18
Cerebro-spinal and other fluids	31
Pathological	20
Medico-legal, determination of blood stains	17
Waters	41
Milks, bacterial count	25
Rats examined	675
Miscellaneous bacteriological and clinical pathological specimens not included above	475
Total	4,480

APPENDIX II.

INSTRUCTIONS FOR THE COLLECTION OF SPECIMENS OF FÆCES FOR EXAMINATION FOR ENTERIC AND DYSENTERY.

The outfit provided consists of a wooden block containing a corked tube in which is a glycerine-saline mixture which retards the death of enteric and dysentery bacilli.

When collecting a specimen for examination for enteric or for bacillary dysentery, the following precautions should be observed.

1. The bed pan in which the motion is collected must not contain any disinfectant.
2. *The specimen must be collected as soon as the motion is passed.*
3. As far as possible, the motion from which the specimen is taken should not be mixed urine.
4. The specimen should be sent to the laboratory as soon as possible or, alternatively, should not be collected until it is known that a mail is going.

When collecting a specimen from a dysentery stool, *select the "blood and mucus" parts*; when from a diarrhœal stool, the more solid parts; and when from a normal stool, the softer parts. Specimens from a constipated stool are seldom satisfactory as pathogenic bacteria die when retained in the large intestine for any time. A saline aperient or a simple enema should be given and the specimen collected from a motion passed after the retained fæces have been evacuated.

One part of the selected specimen is mixed with two parts of the glycerine-saline mixture. The mixing must be thorough. The bottle is then sealed by passing a strip of adhesive tape round the cork and another strip lengthwise round both cork and bottle. It is necessary to seal the cork very securely as the glycerine makes it slippery so that it comes out easily and it is very important that none of the specimen shall leak out to infect other parcels and letters in the mail bag. The tube is replaced in the wooden box, wrapped up and addressed to the Government Bacteriologist, Suva.

This method is not suitable for specimens for amœbic dysentery. In acute amœbic dysentery, the diagnosis is made on the presence of living amœbæ in a perfectly fresh and unpreserved stool. Specimens for examination for amœbic cysts from convalescent cases or suspected carriers can be sent however, by filling a small tin such as is used for examination for worm eggs, with a solid specimen. Such specimens should not be collected after the administration of oil as the latter appears in the stool and renders microscopic examination impossible. The tin should be carefully sealed and packed with cotton wool in another tin or box.

In all cases, the specimen should be labelled with the name of the patient and the name of the sender and a laboratory form should be filled in giving all of the required particulars.

The following are additional notes on the collection of dysentery specimens:—

1. The specimens should be collected during the first four or five days of the disease as these are most likely to give positive results.
2. The name of the town in which the patient was living when he contracted the disease should be given on the laboratory form with his name.
3. The patient's age should be given as accurately as possible; not simply as adult, &c.

4. Clinical notes should include a brief description of the case which will give some idea of the severity and toxicity of the infection. Temperatures should be given exactly and not described as " fever." The definite date of onset and connection with any other cases should be given and any history of previous attacks with dates and details.

The value of these specimens from a Public Health point of view depends on the care with which the specimens are collected and the trouble taken to give all information relating to the origin and nature of the infection.

APPENDIX III.

Results of Bacteriological Examinations of Suva Water Supply made in 1935. *Samples collected from Laboratory Tap, representing water in* 8-*inch main.*

Date of Collection.		Agar Count.	Fæcal *coli*— most probable number per 100 c.c.	
			Full test.	Lactose + citrate—
March	12	120	250	250
	19	80	7	7
	26	85	7	7
April	3	100	9	9
	10	80	9	9
	16	200	15	15
	23	80	9	9
	30	120	9	9
May	8	110	9	9
	14	475	35	35
	21	170	25	25
	28	475	30	30
June	5	120	9	9
	11	100	9	9
	18	65	15	15
	26	70	7	7
July	2	140	11	11
	9	100	4	4
	16	130	25	25
	23	80	4	4
	30	70	0	9
August	7	65	0	3
	13	100	4	9
	20	90	4	4
	27	70	4	4
September	3	60	25	25
	10	65	65	65
	17	90	45	45
	24	50	4	4
October	2	75	15	15
	9	90	..	..
	29	170	250	250
November	5	90	9	15
	12	60	4	4
	19	60	4	4
	26	160	25	25
December	3	120	4	7
	10	200	0	20
	17	75	0	0
	24	100	0	20

REPORT BY MEDICAL SUPERINTENDENT, CENTRAL LEPER HOSPITAL, MAKOGAI.

I HAVE the honour to report on the working of the Central Leper Hospital, Makogai, for the year 1934.

Staff.—Dr. W. Foskett acted as Medical Superintendent until my return from leave on 24th March; Sister Mary Fidelis was appointed on the 10th April and Sister Mary Hilda who had previously served at Makogai returned on the 20th October; Sister Mary Benoit left for New Zealand on the 12th April, as a result of sickness, and Sister Mary Theodore, proceeded on sick leave on the 20th December. Sister Mary Celine also, after fourteen years' service at Makogai, was obliged to resign owing to ill health.

Statistics.—The eighty-nine admissions for the year include sixty-five cases from Fiji itself, sixteen from Rotuma, seven from Samoa and one from Niue Island. The nationalities are indicated in Table I, which also shows the varying types of disease among the admissions. A little over 50 per cent. of the cases were of the Neural type; only two showed extreme deformities, and no case had reached the advanced Cutaneous stage. This appears to represent a definite improvement, and is probably largely due to the growing realisation among practitioners and natives alike of the importance of early diagnosis and treatment.

TABLE I—ADMISSIONS 1934.

Nationalities.	N1.	N2.	N3.	C1.	C2.	C3.	*Total.*
Fijians	6	8	2	.	2	.	18
Indians	5	6	.	2	21	.	34+1*
Solomon Islanders	3	3	.	.	3	.	9
Rotumans	6	3	.	.	7	.	16
Samoans	1	1	.	.	5	.	7
Nuie Islanders	1	.	.	.	.	.	1
Half-castes	.	.	.	.	3	.	3
Total	22	21	2	2	41	.	88

* One Indian admitted and later discharged as a non-leper.

Deaths.—Of the seventeen deaths, there were nine among the Fijians, three of Solomon Islanders and Indians, and one each from among the Cook and Niue Islanders.

Death rates for the past five years are as follows:—

Year.	*Deaths.*	*Rate per mille.*
1930	51	116·4
1931	39	84·2
1932	17	36·1
1933	34	74·6
1934	17	37·9

This appears to show a fairly steady improvement, particularly in view of the fact that it is the advanced cases who are left each year while the earlier cases tend to be discharged or, in the the case of Indians, repatriated.

Causes of death are shown in the following list:—

Exhaustion from Leprosy	4
Nephritis (including Uræmia)	3
Septic absorption	1
Tuberculosis— (General 2, Pulmonary 1, Abdominal 1)	4
Cardiac Disease	3
Pneumonia	1
Hæmatemesis	1

It will be seen that eight of the deaths (including those due to Exhaustion, Nephritis and Septic Absorption) may be fairly attributed to Leprosy and nine to causes apparently unconnected with Leprosy.

DEATHS IN RELATION TO TYPE.

Neural—1	1
Neural—2	3
Neural—3	4
Cutaneous—1	0
Cutaneous—2	3
Cutaneous—3	6

The foregoing list, however, showing deaths in relation to the stage of leprosy, indicates that this cannot be taken entirely at its face value. It is hardly conceivable, for example, that leprosy played no part in the causation of death in each of the nine advanced and moderately advanced Cutaneous or of the four advanced Neural cases. The probability is that in every case the resistance to other morbid conditions is lowered by leprotic infection, although of course the converse may also be true, the disease causing death being the primary condition which had lowered the resistence to leprosy when encountered.

TABLE II.

Nationalities.	N1.	N2.	N3.	C1.	C2.	C3.	*Total.*
Fijians	14	45	15	6	39	23	142
Indians	21	39	7	13	92	12	184
Solomon Islanders	12	11	.	4	16	3	46
Rotumans	.	3	.	.	4	2	9
Chinese	.	.	.	.	6	3	9
Samoans	1	2	.	.	13	1	17
Tongans	1	2	1	2	1	.	7
Cook Islanders	3	10	4	1	10	.	28
Niue Islanders	1	1	.	.	.	1	3
Maoris	.	.	1	.	.	.	1
Half-castes	.	2	.	.	7	.	9
Europeans	1	.	1	.	1	.	3
Total	54	115	29	26	189	45	458
Percentages	11·8	25·1	6·3	5·6	41·2	9·8	...

Table II is of interest in showing the proportion of Neural to Cutaneous cases in the various nationalities. The only three with sufficient numbers for percentages to have comparative value are the Fijians, Indians and Solomon Islanders who give respectively 52·1 per cent., 36·4 per cent. and 50 per cent. of Neural cases. This ratio is similar to that reported in previous years and as will be shown later, the Indians, in spite of their higher proportion of cutaneous cases, continue to give a much higher rate of improvement. It may be pointed out in passing that although the Fijians have a lower proportion of Cutaneous cases than the Indians, 16·2 per cent. of their cases are in the Advanced Cutaneous stage as contrasted with 6·5 per cent. of the Indians. That is to say that the Indians, in spite of their apparently heavier infection, show a much higher rate of improvement, and a much lower proportion of cases advancing to the extreme condition. The explanation of this undoubted fact, supported as it is by records over a number of years, is probably not a simple one, The Fijian accepts his condition philosophically and more or less fatalistically, settles down to the life here and is content to be separated from his immediate family provided he be with others of his own race. The Indian on the other hand actively resents the need, forced upon him by his disease, of isolation from his family, and is in most cases willing to seize every chance and carry out any method suggested to him of improving his condition so that he may be discharged and rejoin his own relatives. This psychical factor is in my opinion of the utmost importance. Evidence regarding possible differences in racial susceptibility is contradictory or at least inconclusive. It may well be that an investigation on scientific lines of the respective diets of the Indians and Fijians here would be of considerable value in explaining the differences observed and in pointing the way to further improvement.

Treatment.—It is impossible to overemphasise the value of general hygienic treatment coupled with treatment of concurrent diseases. If one had to make a choice between such general health measures and specific lepra therapy, one would unhesitatingly choose the former. Fresh air, suitable dietary, cleanliness and graduated exercise are indispensable as a preliminary to specific treatment and it is probably from these factors, which are more under the control of the patients themselves, rather than in specific treatment, which is more easily regulated, that the Indian reaps his advantage. Patients are encouraged to lead an open air life: sports are arranged and prizes donated from the Comfort Fund; the utmost use is made of patients with regard to Public Works and the produce of their gardens is bought for Hospital use.

Specific treatment has continued on the lines recorded in the last Annual Report, the standard treatment being weekly intramuscular injections of Iodised (0·5 per cent.) Chaulmoogra oil. According to Cole (1) " Chaulmoogra-group oils to which 0·5 per cent. iodine is added become so viscous that difficulty is experienced in attempting to use them by injection." This is true unless the oil is kept at a suitably high temperature. Immediately prior to injection the freshly iodised oil is heated for an hour on a water bath and is then poured into a large warmed and sterile thermos flask. Small quantities are poured as required throughout the period of injections into glass beakers standing in basins of hot water. If this method be followed there should be no further difficulty owing to viscosity, the product being comparable with the iodised ethyl esters. The patients agree that this is the least painful injection they have so far received and they much prefer it to the iodised esters to which they formerly paid the same tribute. Results are at least as good as those of previous years. There have been only two cases of abscess formation resulting from nearly 12,000 injections, both occurring in patients suffering from furunculosis, and apart from these there have been no signs of non-absorption. The high temperature of the injected oil probably plays no small part in assisting absorption.

Chaulmoogra oil by mouth to the limit of tolerance, varying with different patients, has been continued. The addition of 0·5 per cent. Iodine which was at one time thought to be an improvement, has been discontinued, patients finding it after a while less well tolerated than the pure oil.

Mercurochrome, as recommended by Muir (2), has proved a useful addition to the small list of drugs such as Antimony and Sodium tartrate, Ephedrine and Dilester (E.E. of Calophyllum bigator), utilised for the control of reaction.

Minor experiments have been carried out with certain of the aniline dyes as suggested by Ryrie (3) but with inconclusive and somewhat contradictory results. They are being continued into the New Year, however, on a larger scale and results will be assessed with care.

Only thirty operations, in almost every case of a minor character, have been required during the year.

Results of Treatment.—The appended Table of Statistics shows twenty-two patients actually discharged during the year. To this figure should be added a further seven cases who were " Boarded out " in December, but had to await transport until the beginning of the year. This gives twenty-nine cases passed by the Medical Discharge Board during the year as having been free from active disease for at least two years. In the following Table these cases are classified according to Nationality and Type of Disease.

TABLE III.—DISCHARGES 1934.

Nationalities.		N1.	N2.	N3.	C1.	C2.	C3.	*Total.*
Fijians ..	.. ..	6	1	.	.	.	.	7
Indians .	.. ..	8	4	1	1	.	.	14
Cook Islanders .	..	.	.	.	1	.	.	1
Solomon Islanders	..	3	1	.	.	.	.	4
Samoans	.. ..	2	.	.	.	.	.	2
Tongans	.. ..	1	.	.	.	.	.	1
Total	..	20	6	1	2	0	0	29

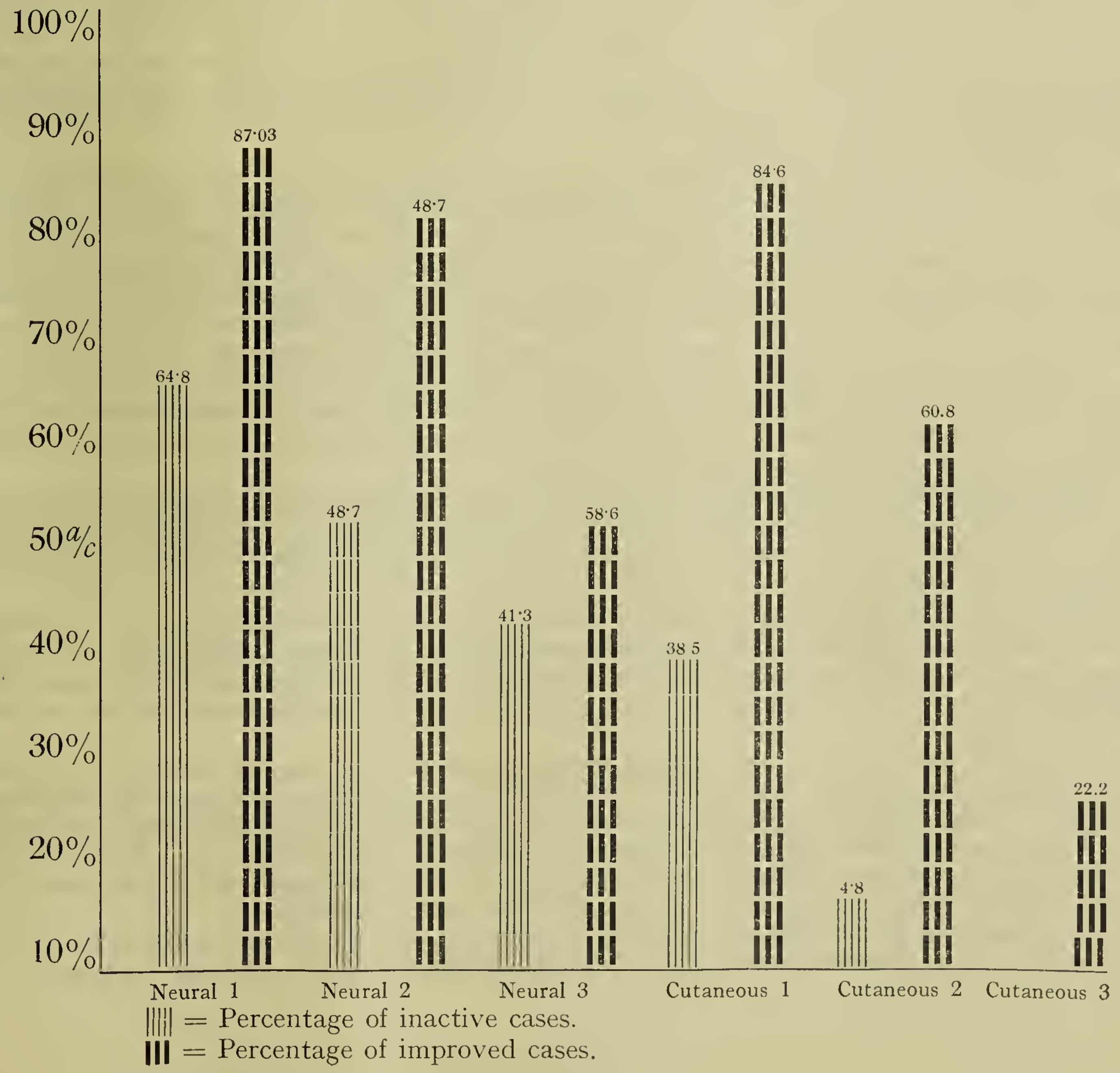
Tale IV shows four hundred and fifty-eight patients examined at the end of the year arranged according to Nationality and Type of leprosy. A number of patients who had only been admitted three or four months previously were not included.

TABLE IV.

Nationalities.	Arrested.	Quiescent.	Improved.	Stationary.	Worse.	Died.	Total.	Percentage improved.
Fijians..	23	17	44	39	10	9	142	59·1
Indians	25	30	93	32	1	3	184	80·4
Solomon Islanders ..	4	6	15	17	1	3	46	54·3
Rotumans	..	1	1	7	..	..	9	22·2
Chinese	..	..	..	9	..	..	9	....
Samoans	..	..	11	6	..	..	17	64·6
Tongans	1	2	2	2	..	..	7	71·4
Cook Islanders ..	4	4	10	8	1	1	28	64·3
Niue Islanders ..	..	..	2	..	..	1	3	66·6
Maori	..	..	..	1	..	..	1	....
Half-castes	1	1	4	1	2	..	9	66·6
Europeans	2	1	..	..	..	..	3	100·0
Total ..	60	62	182	122	15	17	458	66·4

Reference has already been made to the disparity of results between the Fijians and Indians and suggestions offered in explanation. The sixty cases recorded as "Arrested" include a number of cases who, so far as leprous activity is concerned, are ready for discharge, but whose poor general condition or tendency to trophic ulcerations renders it advisable to keep them in Hospital here.

The better prognosis in the earlier stages of each type of leprosy is illustrated by Table V and still more clearly in the following Bar Diagram, showing the percentage of improvement in each stage.



The combination of quiescent and arrested cases, which gives a total of the " inactive " cases in each stage is a much better criterion of real progress than the classification " improved," which is a vague term dependent on the personal predilections of the examiner. Early Cutaneous cases show nearly as high a proportion of " total improvement " as Early Neural cases, but this is mainly due to the lesser degrees of improvement. Thus Cutaneous 1 cases show only 38·5 per cent in the inactive condition as contrasted with 64·8 per cent of the Early Neural cases, while actual discharges are seen in Table III to have been ten times as many in Early Nerve as in Early Cutaneous cases.

Sex Differences.—The usual preponderance of male over female patients is illustrated in Table V, which gives three hundred and twenty-seven males to one hundred and thirty-one females. On the whole the females are less advanced, with a larger proportion of Neural cases, and this fact is reflected in their slightly better response to treatment. Thus of the three hundred and twenty-seven male patients, 38·5 per cent were Neural in type and 64·2 per cent. showed " improvement;" while of the one hundred and thirty-one females, 54·9 per cent. were Neural and 71·7 per cent. were " improved." Progress therefore depends much more on the stage of the disease than on any differences due to sex, in spite of the fact that the more active and less restricted life of the men would tend to give them a better chance.

TABLE V.

Type of Disease.	Arrested.		Quiescent.		Improved.		Stationary.		Worse.		Died.		Total.		Percentage Improved.
	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	
Neural—1	5	9	16	5	5	7	6	..	1	.	.	.	33	21	87·03
Neural—2	23	8	15	10	24	13	10	7	1	2	2	.	75	40	80·9
Neural—3	6	4	2	..	3	2	5	3	..	.	2	2	18	11	58·6
Cutaneous—1.. ..	3	..	6	1	10	2	2	1	..	.	1	.	22	4	84·6
Cutaneous—2.. ..	2	..	7	..	79	27	47	10	6	5	4	2	145	44	60·8
Cutaneous—3.. ..	..	..	..	..	4	6	27	4	..	.	3	1	34	11	22·2
Totals ..	39	21	46	16	125	57	97	25	8	7	12	5	327	131	
Total ..	60		62		182		122		15		17		458		66·4

Public Works.—The two main items carried out by the Public Works Department during the year have been the building of new sleeping quarters for the Sisters, and the transference of the unoccupied house of the Assistant Medical Officer from Nasau to Dalice for the use of European female patients. The Sisters' old quarters had been for some years quite inadequate, there being now thirteen Sisters instead of the two for whom the building was adapted at the opening of the Hospital in 1911. The ravages of white ants made rebuilding essential and advantage was taken of this necessity to provide a suitable building, with sixteen separate cubicles in addition to bathroom and cloakroom accommodation. The present structure is a very satisfactory one, being light and well-ventilated. It is, of course, only fitting that the Sisters, who are so largely responsible for the happiness and well-being of the patients here, should be comfortably housed. The addition of a roomy porch to their living quarters is a further step taken during the year towards the realisation of that ideal.

The Sisters' refectory and cloakroom at the Hospital has also been reconstructed and enlarged. The original room provided " standing room only " for the present staff, and here again general deterioration of the building provided opportunity for an improvement long overdue.

The house built for European female patients had been used for other purposes since the discharge of the last patient in 1928. A newly admitted patient had therefore to be temporarily accommodated on the roomy verandah of the dressing room in the women's compound, but the reconstruction in the Hospital of the A.M.O's house has provided very suitable quarters.

New bathrooms and kitchens are gradually replacing old and dilapidated structures throughout the villages, and many of the original main buildings will soon be needing reconstruction or replacement. General works of maintenance, painting, &c., have proceeded as usual, and the road from Nasau to Dalice has been kept in good order.

All the work at Dalice has been carried out by patients who are paid about half the normal rate for the Colony and are thus encouraged to undertake work which is physically beneficial to them. At the same time it is thus possible to undertake more works than if labour had to be imported at full rates of pay.

Wireless Telephone.—A long felt need would appear to be now satisfied by the installation by the Amalgamated Wireless Company of Australasia of a wireless telephone service between Makogai and Levuka. The A.W.A. has generously donated the apparatus at Makogai on the understanding that the Government will buy the Levuka set if satisfied with the service at the end of the year.

It was at first hoped to run a direct service to the Medical Department in Suva, but this proved impossible owing to " interference," and the set was therefore transferred to the Hospital at Levuka. Since then the service has proved very satisfactory, and it has been found possible to hold conversations with the Medical Officer at Levuka at least once a day. This has already proved a great advantage, for urgent official messages for Makogai can now be telephoned to the District Medical Officer at Levuka and forwarded at once by wireless.

I should like to take this opportunity of expressing to the officials of the A.W.A. in Fiji, our appreciation of their constant courtesy and willingness to assist in any way possible, *Produce.*—The patients' gardens have done very well during the year, and the open-air exercise entailed in their cultivation is regarded as an important adjunct to specific treatment. About one hundred and seventy-five tons of cassava, bananas, &c., have been bought for Hospital use at £4 per ton—a valuable encouragement to the patients as well as providing a more nutritious diet than bought rice. Many of the patients keep their own ducks and fowls and there is quite a traffic in these, particularly at such times as Christmas.

The Hospital fowl-yard has been improved by the importation of more Silver Wyandottes, in order to prevent deterioration due to inbreeding. Nearly 12,000 eggs and 300 fowls have been supplied to the Hospital, a splendid addition to the normal dietary of the patients. Great credit is due to the Native Sisters who, under the direction of the Reverend Mother, are responsible for the care of the poultry.

Milk, meat and soap have been produced at Nasau for use at the Hospital and I have asked the Lay Superintendent to report on Farm Produce, Stores, &c. Details will therefore be found in an Appendix.

Chaulmoogra Trees.—The Chaulmoogra trees originally planted in 1926, but badly damaged by the storms of 1930 and 1931, have largely recovered and are now doing well. About a hundred of the hydnocarpus wightiana trees are now bearing fruit, but so far there has been no sign of fruit on the hydnocarpus anthelmintica trees, which have moreover a less healthy appearance. About three pints of oil, which appears to be of excellent quality, have so far been prepared, and specimens have gone forward for analysis.

Visitors.—We were favoured in May by a visit from Dr. Victor G. Heiser of the Rockefeller Foundation and President of the International Leprosy Association, who was accompanied by Dr. McGusty as Acting Chief Medical Officer and Dr. S. M. Lambert of the Rockefeller Foundation and Deputy Central Medical Authority to the Western Pacific High Commission. Dr. Heiser's remarks enabled the patients to realise that efforts on their behalf are being carried out on an extensive scale and that their's was but part of a world-wide problem. They were further encouraged by Dr. Heiser's empressions regarding the steady improvement of conditions at Makogai between each of his three visits.

Other visitors included Dr. Watt, Director-General of Health Services, New Zealand; Rev. Mother Mary Rose, Superior-General of the S.M.S.M., who was on a tour of inspection throughout Oceania; Mr. J. M. Martin of the Colonial Office; Mr. Wise, Director of Public Works; Miss Mayo Robson of London; representatives of the various Churches in Fiji; and others.

C. J. AUSTIN.

APPENDIX.

REPORT ON MAKOGAI PRODUCE, &c., 1934, BY THE LAY SUPERINTENDENT.

Soap.—Eight tons 13 cwt. 10lb of soap were manufactured valued at £268 0s. 9d. Of this, soap to the value of £57 17s. 1d. was sold to the Island Staff, the balance being issued to the Patients.

Bakery.—62,389 (2lb) loaves were baked during the year, 11,735 were sold to the Patients and Staff for £248 3s. 8d., the balance, 50,654 valued at £1,035 18s. 8d., were issued to the Patients. Flour to the value of £20 0s. 6d. was sold to the Patients.

The cost of running the bakery for the year was £827 18s. 0d.

Makogai Produce.—An amount of £33 10s. 7d. was realised from the sale of produce:—Meat sold to staff, £15 0s. 0d; Milk sold to staff, £18 10s. 7d; Total, £33 10s. 7d.

Patients' Co-operative Stores.—The receipts for the year amounted to £2,444 14 6d. and the expenditure £2,766 2s. 3d. Value of stock in hand at the end of the year totalled £749 11s. 9d. with a credit cash balance of £99 12s. 2d.

Staff Canteen.—The receipts for the year amounted to £1,338 17s. 4d. and the expenditure £1,207 17s. 4d. £107 19s. 10d. representing accumulated "Liquid Profits" was distributed:

90 per cent. =	£97	3	10	paid into Makogai Comforts Fund.
10 per cent. =	£10	16	0	credited against Makogai expenses.

Financial Summary.

Public Works—

	£	s.	d.
New Buildings	£1,967	19	0
Maintenance Works	1,821	19	6
	£3,789	18	6

Credit against Makogai expenses.—

	£	s.	d.
Produce sold	£33	10	7
Flour sold	20	0	6
Bread sold	248	3	8
Soap sold	57	17	1
10 per cent Canteen profits	10	16	0
	£370	7	10

Value of Issues.—

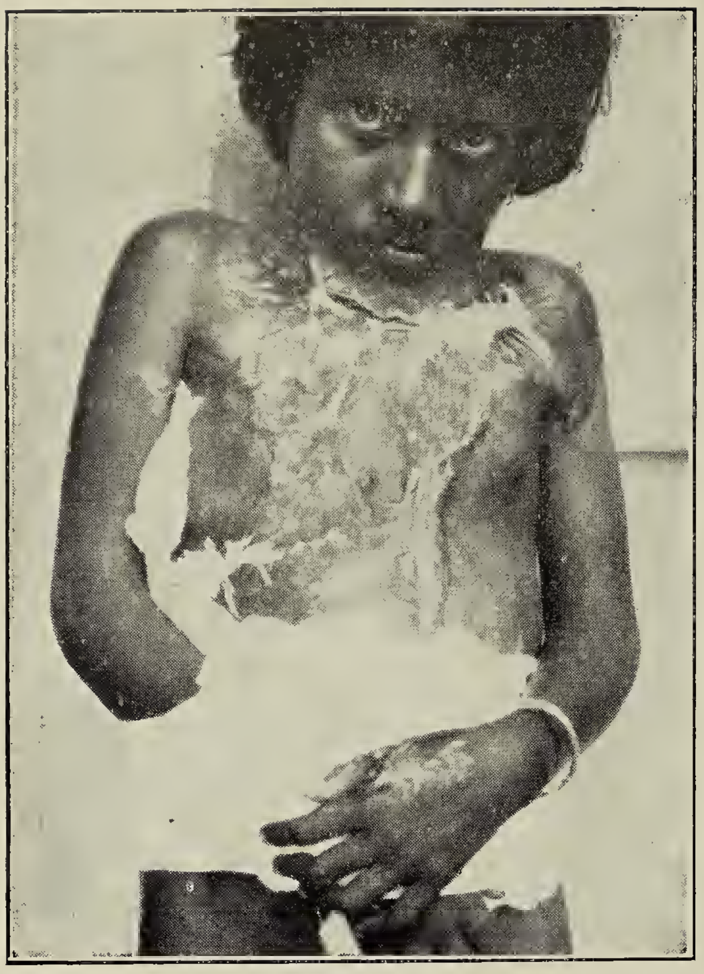
	£	s.	d.
Soap issued	£210	3	8
Bread issued	1,035	18	8
	£1,246	2	4

1934.	Dressings.	Patients Dressed.	Operations.	Injections.									Total of Injections.	Laboratory Examinations.			
				Manganese Butyrate.	Salvarsan.	Dilesters.	Chaulmoogra.	Methylene Blue.	Fluorescein.	Antimony Tartrate.	Mercurochrome.	Brilliant Green.		Bacteriological Examinations.	Urine Analyses.	Helminths.	Total of Laboratory Examinations.
January	5,706	2,736	2	14	..	24	799	..	..	..	..	..	837	25	..	..	25
February	4,624	2,400	..	11	..	29	1,159	..	..	..	..	..	1,199	..	..	14	14
March	5,382	3,024	1	10	..	35	878	..	..	..	..	..	923	34	..	15	49
April	5,049	2,380	..	3	2	31	615	..	..	..	..	..	651	93	..	..	93
May	5,598	2,646	3	19	..	33	1,071	..	..	..	..	..	1,123	105	10	5	120
June	5,984	2,754	4	15	19	17	1,157	..	..	..	..	..	1,208	113	9	14	136
July	7,092	3,042	3	3	18	17	975	..	..	..	..	..	1,013	82	3	12	97
August	6,715	2,846	7	24	53	19	1,270	1	2	..	..	..	1,369	90	77	15	182
September	7,830	3,114	1	18	20	24	929	3	6	..	..	..	1,000	51	99	5	155
October	6,984	3,078	3	16	24	40	1,179	3	3	..	1	1	1,267	35	96	6	137
November	6,766	3,043	2	10	21	47	1,261	5	6	8	6	5	1,369	59	92	13	164
December	7,470	3,402	4	6	10	11	406	2	..	2	3	2	442	45	96	10	151
Total.	75,200	34,465	30	149	167	327	11,699	14	17	10	10	8	12,401	732	482	109	1,323

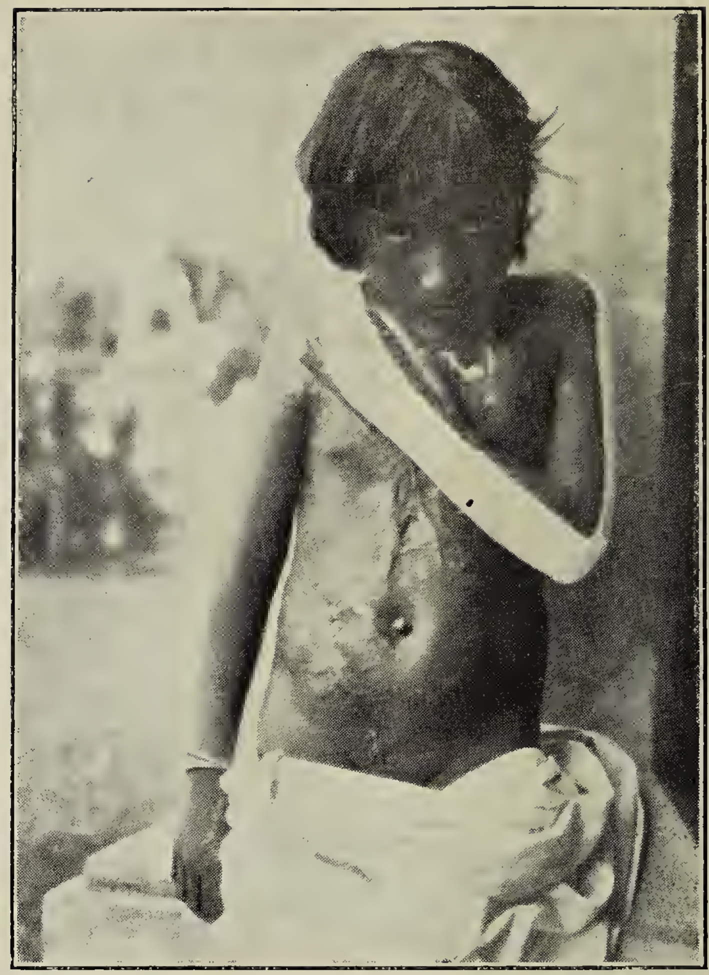
Prophylactic T.A.B. Injections, July, 1934, 342.

STATISTICS FOR THE YEAR 1934—MAKOGAI CENTRAL LEPER HOSPITAL.

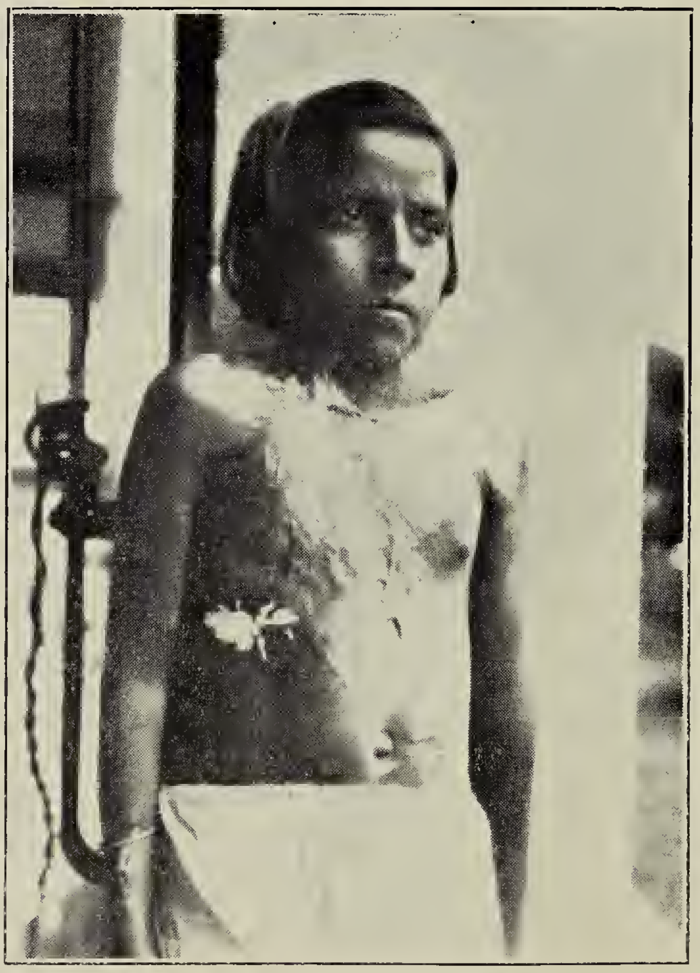
	European.		Half-caste.		Fijian.		Melanesian.		Indian.		Rotuman.		Chinese.		Samoan.		Maori.		Niue Islander.		Cook Islander.		Tongan.		Total.
	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M. F.
In the Hospital on the 1/1/34	2	1	4	4	94	45	41	5	120	45	8	1	8	.	8	2	1	.	1	2	11	17	3	4	301+126=427
Admissions	.	.	3	.	14	4	8	1	29	6	6	10	.	.	5	2	.	.	.	1	.	.	.	.	65+ 24= 89
Deaths	.	.	.	.	6	3	3	.	2	1	.	.	.	.	.	.	.	.	.	1	1	.	.	.	12+ 5= 17
Discharges	.	.	.	.	3	3	3	1	7	5	.	.	.	.	2	.	.	.	.	.	.	1	.	.	15+ 10= 25
Repatriated	.	.	.	.	.	.	.	.	6	2	.	.	.	.	.	.	.	.	.	.	.	.	.	.	6+ 2= 8
Remaining in the Hospital	2	1	7	4	99	43	43	5	134	43	14	11	8	.	11	4	1	.	1	2	10	16	3	4	333+133=466
Total inmates, on 31/12/34	3		11		142		48		177		25		8		15		1		3		26		7		466



Shows chin bound down to chest by scar tissue. Right forearm bandaged to body in second stage of pedicle flap, in which one end of pedicle is implanted into the forearm.



Shows stage in which the flap has been carried by the forearm to the neck. The tubed pedicle can be plainly seen, also the area on the abdomen from which the pedicle was taken. By a block-makers error it appears as if the left forearm was used; actually the right was used.



Shows stage in which the pedicle has been separated from the forearm and implanted into the raw area in the neck left by the excision of scar tissue. Scar on the right forearm indicates the area used in transference of the flap. The scar tissue seen on the right side of the neck was excised later and replaced by a flap from the right scapular area. Note the difference in the childs appearance and how the flap has stretched allowing the child to look straight ahead.

PLASTIC SURGERY IN THE TROPICS.

By T. Clunie, M.B., Ch.B. (Aberdeen), Surgeon, Colonial War Memorial Hospital, Suva.

A belief, by no means confined to laymen, is current that surgery in warm countries is attended by special risks as micro-organisms flourish exceedingly in warm, humid zones and are ever in wait to strike at exposed tissues. This is probably a very natural conclusion to arrive at, but is it supported by scientific fact ? I am of the opinion that it is not. A study of the returns in tropical hospitals compare very favourably with those of temperate climes. Given the necessary surgical skill, appliances and surroundings, there is no more risk in undergoing an operation in the tropics than in London.

The staphylococcus has probably gained an unmerited reputation for virulence in warm countries and one frequently hears of people deciding to seek a change in a temperate or cold climate to throw off recurring crops of boils.

Patients seem to particularly fear any plastic procedure or any operative procedure on bones in the tropics. In fact this fear is so prevalent that one inclines to the belief that medical opinion must have been a party to its inception. The truth is that surgical procedures on healthy subjects in the tropics carry no more risk than in temperate lands. So long as people in the tropics subsist on an adequate well-balanced diet and lead active lives they remain healthy until struck down by some common organism or an organism peculiar to warm climates. The " rundown " European case is more common in the tropics than in temperate lands, largely due to improper feeding and too infrequent leave or holiday periods in a temperate climate, and it is for these reasons that staphylococcal infections are probably more common. Otherwise one may approach plastic work with perfect confidence. History supports this conclusion. The home of Plastic Surgery was India.

As J. J. M. Shaw, of Edinburgh, so tersely puts it " The operation of rhinoplasty forms the material of the earliest records of plastic treatment. In the ancient sacred writings of India, in which country the custom of punitive amputation of the nose gave unusual scope to those of a reconstructive temperament, are described the highly successful efforts of members of the ' tile-maker ' caste in this operation. By them were employed not only local cheek flaps but also pedunculated flaps from the forehead, in a manner not widely different from the modern operation which is still rightly termed the ' Indian method.' The papyri of Egypt also treat of rhinoplasty as an established procedure."

The Hindus used the method not only for rhinoplasty but for restoring defects of the cheeks and lips.

The " sliding flap method," known as the French method, was probably originated by Celsus in the first century, A.D.

Branca originated the " Italian method," which was elaborated by Tagliacozzi who published the first treatise on plastic surgery in 1597.

Great Britain, a temperate land, seems to have lagged behind in realising the value of plastic repair. J. C. Carpue in 1814, in London, read in a lay journal of the results achieved by the Indian method, and stimulated by the description, successfully employed the forehead pedicle in several cases. It cannot be said that Britain lags behind now as such names as those of Gillies and Pickerill have become of international significance.

The importance of plastic surgery in the tropics.—War seems to have been the main stimulus to plastic surgery in the land of its birth—India. Centuries later it was War again which led those " of a constructive temperament " to help their maimed fellows. Modern war with its devices for the destruction of life and limb and form, and the accidents which may take place in the handling of the implements of war, brought ample material into hands of the plastic surgeon. Sidcup, between the years 1915 and 1921, might be called the home of modern plastic surgery.

Civil plastic surgery exists, however, and it is in the tropics that a great field is open for it. The ravages of Yaws and various fungus diseases are still in evidence, filariasis leads to unseemly deformities, while deformities due to burns are common especially among East Indians whose voluminous clothes are so liable to catch fire and whose children appear to have the free run of kitchens.

Karuna K. Chatterji, in his work on Tropical Surgery, depicts deformities due to burns in India and the great improvement brought about by plastic operations, and muscles and tendon transplantations.

Methods.—All the methods described in works on plastic surgery may be used in the tropics. The type of repair will depend upon the character and quantity of the lost tissues and the shape and depth of the area to be dealth with. It must be remembered that mere cosmetic effect is not the only thing to be aimed at, as restoration of function is all-important.

As foreign material such as catgut or other ligature material is very liable to interfere with healing and to cause sepsis the coagulating diathermy current should be used whenever possible as it is of considerable value in controlling hæmorrhage. The drier the field the greater the hope of success.

Tissue transplants which may be used are:—

(1) *The epidermic graft* (*Ollier-Thiersch*) employed for covering superficial raw external surfaces, and for replacement of mucous membrane of the mouth, nose, &c. This is but a shaving and is not cut sufficiently deep to include hair follicles. Pickerill advised that it should be used only to replace lost mucous membrane.

(2) *The thick razor graft* (intermediate graft) used extensively at Sidcup during the war.

(3) *The whole thickness graft* used as a flap (Wolf Krause), or as a *pinch graft* (Reverdin).

All these are *free grafts*, and because pressure is essential to their success after they have been applied they are classed as *pressure grafts*.

The thick razor graft is very successful when applied to a clean raw area such as that left after excision of a rodent ulcer of moderate size and which has not destroyed the deeper tissues, and over which pressure can be applied.

The whole thickness graft includes the skin down to, but not into the fatty layer. It is cut with a scalpel much as skin is raised in the dissecting room and has to be sutured in place and pressure can be maintained evenly for several days (up to ten); it is thus successful when used to replace the forehead flap used for rhinoplasty.

Pinch grafts may be raised by transfixing the skin with a straight needle and cutting off the raised cone with a razor. The average size of such grafts is half an inch in diameter but they diminish by shrinking. They make excellent grafts for covered areas but for exposed areas the metic result is poor. They may be cut under ·5 per cent. local novocaine anæsthesia.

Epidermic grafts are usually cut from the anterior surface of the arm or thigh, whole thickness grafts from the abdomen.

Methods of fixation and pressure.—To obtain the essential pressure for the successful " taking " of epidermic grafts dental composition (stent) or sorbo rubber sponges may be used. Rubber bags are not reliable in the tropics as they are usually found to be perished or leaking when required. Sorbo sponges give an even elastic pressure. If a strapping dressing is required elastoplast is more satisfactory than ordinary strapping.

Epithelial inlays should be held in place by the modification of the Esser method as practised by Gillies, Pickerill, and Waldron. In the case of the mouth special splints may have to be used.

Flaps.—The *Bridge graft* is employed chiefly in repair of the extensor aspect of the hand or forearm, although the method can be extended by a little ingenuity, the rationale being that the area to be covered is buried under a bridge of skin undercut at the sides in a convenient area.

The arterial pedicle.—This requires but two operative stages, and is employed especially in the forehead where it serves as a conduit for the anterior branch of the superficial temporal artery. The area to be covered is prepared by the removal of scar tissue and a pattern taken of it in tin-foil. By means of the tin-foil the entent of the facial defect is traced on the forehead. A flap is then raised leaving the base intact as a stalk for the entering artery. The pericranium is left intact. The flap is sutured at once into the facial defect.

Two weeks later the pedicle is cut and the portion not required is returned to the forehead. The raw area on the forehead is covered by a whole-thickness graft from the abdomen.

A flap carrying the supra-orbital artery may be used in rhinoplasty.

Pedicle Flap.—The length of a pedicle flap should not be more than three times its breadth otherwise a sufficient blood supply through the pedicle cannot be assured and necrosis may follow.

The arterial pedicle flap allows of a better blood supply but the area to be covered may not be convenient.

The tube pedicle was probably first used at Sidcup by Newlands, Gillies, Waldron and Pickerill, working on war cases at the Queens Hospital in 1917, although Filatoff of Odessa claimed to have used it one year before.

The method was particularly useful in severe burns about the face where local pedicles could not be secured; further even were local skins available the method avoids further scars about the face or other exposed surfaces.

By the anastomotic method this type of pedicle may be transferred from the abdomen to remedy defects on the face or neck, &c.

Illustrative Cases—1.

Elephantiasis is still common in the tropics despite the enormous amount of work carried out in the field of filariasis by Manson, Manson-Bahr, O'Connor, and others. Our knowledge of the pathology of the disease has greatly advanced but treatment has not kept pace with this advance, and although much relief may be obtained by the intravenous injection of T.A.B. vaccine, certain drug administration, and by bandaging, we must depend so far on anti-mosquito measures for the eradication of this very prevalent condition.

Plastic work has a place in the eradication of the unsightly deformities of elephantiasis of such areas as the mammary glands, the forearm, the leg, &c., but it is probably in elephantiasis of the scrotum that its results are most greatly appreciated by patients as the unfortunate victims lead a miserable existence owing to the size and weight of the tumour, sexual disabilities, and the recurring attacks of inflammation in the mass and surrounding lymphatics. Manson long ago pointed out how different was the outlook on life of these patients before and after operation.

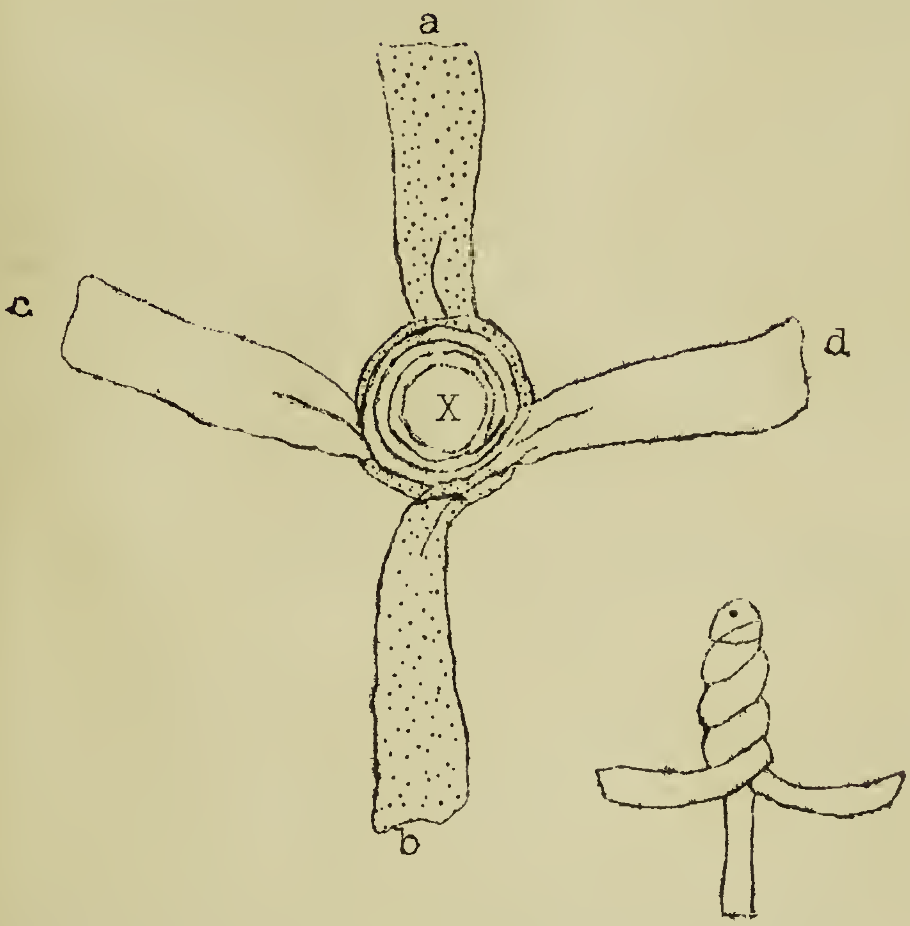
In cases in which the skin of the penis is involved it is necessary to denude this organ from base to glans and follow this denuation by an immediate skin graft.

An intermediate pressure graft is cut from the thigh sufficiently large to cover the whole penis. A good deal of practice in cutting such grafts is required in thus securing an adequate covering. In most cases two grafts may have to be cut, one for the dorsum and one for the central surface of the organ. The edges of the graft are stitched with horsehair on a fine needle to the mucous membrane adjoining the corona and to the skin surrounding the base of the penis.

If Kirschner's epidermis elevator is available it is a simple matter to cut a graft to cover the whole denuded surface of the organ.

The dressing.—Sir F. P. Connor in his " Surgery in the Tropics," writes:—The case is now ready for dressing, and this is a most important procedure. The glans penis is held between the finger and thumb of an assistant, and a strap of oiled silk or silver paper, perforated in a few places is wrapped round the penis over the grafted skin. A stiff and antiseptic splint is fashioned in the following manner, to control the penis and keep the skin graft in position.

Diagram demonstrating method of adjusting lint-bandage-splint for penis in operation for Elephantiasis Scroti. X represents penis in section.



Method:-

Two pieces of lint squeezed out in a 1% watery solution of picric acid are prepared. Each piece is 1 in. wide and 14 to 16 in. in length. The first piece is adjusted as shown in the diagram above at (a) and (b), starting proximally at (a) above the pubes and over the vertical part of the incision it is wrapped round the penis upwards and downwards, and terminates distally over the suture line of the perineum at (b). The second piece is placed proximally along the right inguinal region at (c), wrapped round the penis upwards and downwards as before, and ends distally along the left inguinal region at (d). When these moist strips of gauze become dry, they constitute a stiff and antiseptic covering for the penis of the consistency of cardboard.

Pieces of gauze and sufficient cotton wool are used to complete the dressing, and a double spica bandage is applied. Vaseline is smeared round the dressing of the penis where its edge comes in contact with the corona glandis, to prevent urinary contamination.

Two pieces of lint squeezed out in a 1 per cent watery solution picric acid are prepared. Each piece is one inch wide and 14 to 16 inches in length. The first piece is adjusted as shown in the diagram at (*a*) and (*b*), starting proximally at (*a*) above the pubes and over the vertical part of the incision; it is wrapped round the penis upwards and downwards, and terminates distally over the suture line of the perineum, at (*b*). The second piece is placed proximally along the right inguinal region at (*c*), wrapped round the penis upwards and downwards as before, and ends distally along the left inguinal region at (*d*). When these moist strips become dry they constitute a stiff and antiseptic covering for the penis of the consistency of cardboard.

Pieces of gauze and sufficient cotton wool are used to complete the dressing and a double spica bandage is applied. Vaseline is smeared round the dressing of the penis, where its edge comes in contact with the corona glandis, to prevent urinary contamination."

We have found this method of dressing efficient, but have used porowax instead of oiled silk or silver paper. The patient is placed in bed with a cradle over the pelvis and great care is taken to prevent soiling of the wound by urine. The patient should lie on his side while voiding urine and a kidney dish or other open receptable should be used instead of the usual ward urinal.

The wound dressings are usually changed after three or four days and the incision painted with tincture of iodine. The penile dressing is not interfered with as the picric acid should have kept it clean and sweet.

On the eighth day the skin graft is inspected, horsehair sutures removed, and the grafted area dressed with liquid paraffin and flavine (1-500)-soaked gauze. The penis is bandaged at right angles to the surface in an attempt to prevent contraction on the under surface which would lead to pain and difficulty later.

The results of this plastic procedure are good. The grafted skin makes a covering with which the patient is quite pleased although it does not compare with the normal elastic skin of the organ unaffected by elephantiasis.

Flaps have been taken from the pubic region especially in cases in which a heavy elephantoid scrotum has pulled the pubic skin downwards by its weight. The skin from such an area is hairy and for results to be good depilation must be carried out by X-Ray exposure or other method. It is questionable if such a pedicle flap is very much better than a pressure graft although it would give a more movable covering. I have not used it because the methods of depilation have not been available. Attempts to utilise a flap, by the anastomotic method, from a comparatively hairless area of the body have so far been defeated by urinary sepsis.

2. *The application of an epidermic graft upon a mould.*—

Case (a) *No.* 1996.—European male aged 76 years. High B.P. Rodent ulcer left lower eyelid between inner canthus and middle of eyelid. Lived in Fiji since youth. Kahn Test positive.

Venesection on three occasions while in hospital.

Anæsthesia.—Intravenous Evipan.

Operation.—The ulcer bordered on the line of the eyelashes and some time was required for a careful dissection. The ulcer and surrounding skin had been previously painted with 2½ per cent. mercurochrome.

Bleeding was controlled by small hæmostats and by pressure with a warm swab. A piece of " stent," previously sterilised, in the absence of steam sterilisation, by immersion for some hours in 1-20 carbolic lotion, and well rinsed in sterile water, was softened in hot sterile water, and firmly pressed into the cavity left by excision of the ulcer until it partially hardened. It was then removed, the edges trimmed by sharp scissors, and immersed in cold sterile water to harden it.

An epidermic graft was raised from the inner and anterior aspect of the arm and wrapped, raw surface outwards, round the stent mould which was then inserted into the dry cavity. Horsehair sutures across the cavity and over the mould held the mould in place. A light gauze dressing was applied to guard against invasion by flies. The sutures were removed on the eighth day and the stent mould removed.

Result.—No great hopes of the graft taking were entertained in this case as the old gentleman had rather rheumy eyes and very oldstanding chronic conjunctivitis. Irrigation of the eyes with argyrol was necessary but despite the conjunctivitis and the use of an antiseptic which necessarily overflowed over the graft the result was excellent and the patient was discharged with a healthy skin where an unsightly ulcer had existed, and with no lid deformity.

Case (b)—*No.* 343.—European male aged 67 years; over 30 years residence in Fiji. Arteriosclerosis and diabetes mellitus. Excavating rodent ulcer between inner canthus of left eye, nose and cheek.

Ancæthesia.—Intravenous Evipan.

Operation.—A deep dissection necessary and hæmorrhage, in the absence of a diathermy knife, difficult to control.

Skin from arm as in case (*a*) placed in cavity with use of stent mould.

Result.—Insulin was used to make this case reasonably safe for surgical procedures. No sepsis occurred and the graft result was excellent.

I am indebted to Dr. R. W. D. Maxwell for his assistance in the anæsthesia of these cases.

Case (c)—*No.* 885.—An Indian infant of 16 months, scalding of hand caused by hot milk. Contractures followed so that the tip of the middle finger touched thenar eminence.

Anæsthesia.—Ethyl chloride and ether.

Operation.—Scar tissue excised and epidermic graft placed raw area; this was covered by a piece of porowax and over this was placed a sterile piece of sorbo rubber sponge; the whole was held in place by a piece of elastoplast wrapped round the finger. A wooden splint attached to the forearm held the fingers in extension.

The sorbo and the elastoplast maintained an even pressure so that when the graft was exposed on the eighth day it was found to have " taken " well.

Result.—Seen some weeks later the infant had full use of the hand and fingers and there was no contracture. The graft was of a darker colour than the surrounding skin but this was immaterial as the palmer surface is not constantly exposed.

3. *Pedicle flaps.*—

Case (a).—East Indian female child, aged 12 years. Extensive burns of front of the neck, thorax and upper abdomen, with less extensive involvement of arms and hands. This child was greatly shocked and there is little doubt that she owes her life to the employment of tannic acid in the early treatment of her case.

She was extremely ill and her recovery was not thought possible on several occasions.

On recovery extensive contractions between neck and thorax resulted in her chin being held down to her upper thorax so that the childs orbit was limited to the ground immediately in front of her. There was also the great danger that development of her lower jaw would be interfered with as it was firmly bound down and could not be used in mastication. Replacement by manipulation of adjacent tissues was impossible owing to the scarring over the thorax.

Had the child been a male it would have been a comparatively simple matter to have employed a double-pedicle flap from the scalp swung downwards to fill in the defect left by the excision of scar tissue, and to use a pressure graft to cover the scalp defect. As the child was a female it was felt that our declining years would not be blessed by a young lady condemned to the use of a razor. It was decided to use the anastomotic pedicle flap method.

Anæsthesia.—Ethyl chloride preceded by nembutal was used in the various stages of operation.

First Stage.—Two parallel incisions were made through the skin of the lower abdomen on the left side, the incisions running in the line of the natural creases of the skin. These incisions were approximately two inches apart and seven inches long. By undercutting a strip of skin was raised with a thin stratum of fat attached. The ends were left attached. The adjacent skin edges were undercut and drawn together below the raised strip of skin by silkworm gut sutures run through rubber tubes so that a fair amount of tension might be used.

The strip of raised skin, meanwhile wrapped in a saline swab, was now undersewn with interrupted catgut sutures so as to form a tube. A gauze dressing was placed over the abdominal skin wound and this was covered with sterile jaconet. Another gauze dressing covered the undersurface of the tube. A light dressing and binder were applied over all, and the patient was nursed with knees flexed and the head raised on three pillows.

Stage 2. Three weeks later the end of the tube near the median line of the body was detached and sewn into a prepared area on the dorsum of the right forearm about three inches from the wrist. The arm was bandaged to the body to ensure immobilisation.

Stage 3.—The arm attachment appeared to be healed and to have a good blood supply three weeks later. The end of the tube still attached to the abdomen was detached and implanted into a prepared area at the left side of the base of the neck free from scar tissue and within easy pedicle distance of the scar to be excised. This necessitated flexion of the elbow and fixation by adhesive strapping with the hand as high on the left shoulder as was possible with comfort. The little patient was very good and showed admirable co-operation.

Stage 4.—A month later the tube was detached from the arm. Its free extermity was wrapped in warm wet gauze while the scar tissue was dissected out allowing the chin to be lifted up from the chest. A formidable hæmorrhagic area was disclosed. Bleeding points were ligatured and warm gauze pressure applied while the tube was opened out and implanted over the raw area, catgut sutures being used.

A firm dressing was applied and the case was nursed in bed with the head between sandbags. A strapping " watershed " prevented contamination by fluid from the mouth.

A flap was raised over the right shoulder in anticipation of scar excision on the right side to which stage 4 flap would not extend.

Stage 5.—The stage 4 flap took excellently and extended one inch beyond the middle line and was 2⅛ inches wide. Scar tissue was still present on the right side. This scar was excised and the outer end of the shoulder pedicle was implanted into the raw area left.

The patient was sent home 3 weeks later, with sound healing. She is to return later for the trimming of the flaps.

The result may be said to be very good as the child's appearance is much improved, she can look straight ahead and to the side, and mastication is normal, *i.e.*, the ideal has been attained —a good cosmetic result allied with good function.

Case (d)—*No.* 748.—Adult, male, Indian. Severe burns of lower limbs. Admitted with both knees in almost right angled contracture and both popliteal spaces covered with scar tissues.

Anæsthesia—General.—Chloroform and Ether, and later Evipan.

Operation.—Anastomotic pedicle flap abdomen to thigh necrosed in second waltzing step. Patient is of rather low intelligence and is difficult to keep clean.

Tubed pedicle flaps raised from the thigh, the lower end being near the knee, were successful and were grafted into raw areas left by excision of scar tissue in popliteal spaces.

Raw areas left by further excision of scar tissue to obtain full extension of the knee, were filled in by pinch grafts.

SUMMARY.

1. Plastic Surgery carried out on reasonably healthy subject is often a necessary and certainly a safe procedure in the tropics.

Specific or other diseases must of course be dealt with before plastic procedures are undertaken.

2. In the case of pressure grafts, necrosis is more often the result of inadequate pressure than of sepsis.

3. The technique of plastic surgery in the tropics differs little from that of temperate climates.

4. The use of antiseptics is not always necessary, and in the case of pressure grafts should be avoided as superficial cells are so easily destroyed, but the use of flavine or mercurochrome is an advantage if there is reason to suspect or anticipate sepsis.

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SEVENTH ANNUAL REPORT ON WESTERN PACIFIC HEALTH SERVICE, 1934.

Introduction.—This is the seventh Annual Report of the Western Pacific Health Service, a department which operates under the control of the Central Medical Authority of the Western Pacific High Commission who is Chief Medical Officer of the Colony of Fiji and is the agency through which South Pacific Groups co-operate with the Rockefeller Foundation.

Fijian Latrine Campaign.—This work has progressed favorably on the whole during the last year. The fourth quarter is short due to the long holiday season during which Fijians will not work; also, we are working among the Fijians only this quarter. The end of the co-operative period of three years will come May 1st, 1935, when the large island of Viti Levu will be completed except Rewa delta, Namosi and a portion of Colo North. The first of these has sandy soil which will need special measures; the second is in the mountains where supplies have to be carried up miles of rapids into the hills. Plans for this area have not been completed yet. Work in Colo North is incomplete because the latrine campaign interfered with more important work of the Province. The slabs needed for this area are 495; before our unfortunate competition with provincial work we had delivered 245 slabs in various parts of the province which are said to have been installed since, so that that the province may be half done. Colo means mountain. In the neighbouring province of Colo West, equally difficult, the work went smoothly to completion during the year. We are now completing Ra province, which runs into the mountains and we are entering Colo East Province entirely in the hills.

Statistics for the quarter end for the year follow:—

REPORT OF WORK DONE IN THE LAST QUARTER, 1934.

District.	Homes surveyed.	Holes dug.	Holes bored.	Slabs supplied.	Completed.
Ra—(Indians and Others	88	134	11	110	192
Tavua—(Indians and Others)	..	10	..	7	5
Ba—(Indians and Others)	3	3	..	..	3
Lautoka—(Indians and Others)	..	..	22	41	41
Colo East—(Fijians)	215	..	..	..	..
Colo North—(Fijians) 2nd quarter	..	..	..	137	..
Nadi—(Indians and Others)	..	..	..	..	22
Ra—(Fijians)	..	647	..	676	323
Totals ..	306	794	33	971	586

WORK COMPLETED DURING 1934.

	Homes surveyed.	Holes dug.	Holes bored.	Slabs supplied.	Completed.
First Quarter	1,277	1,054	147	1,457	1,288
Second Quarter	2,251	984	142	833	1,050
Third Quarter	717	951	177	887	1,106
Fourth Quarter	306	794	33	971	586
Totals ..	4,551	3,783	499	4,148	4,030

Post—Campaign Organisation.—One of the serious difficulties of soil sanitation work in the South Pacific is in procuring regular inspections and maintenance of work after latrines are once installed. For instance, in Tonga at the conclusion of the campaign there in 1928, every home in the three groups of Tongatabu, Haapai and Vavau had an adequate flyproof latrine with a concrete slab, a concrete riser, a hardwood seat and flapcover, and a ventilating pipe, and all of these well housed. An inspection of Tongatabu in 1934 showed that in spite of the semi-permanence of these arrangements already the seats of these latrines and the housing had begun to fall into a state of disrepair.

Our Campaign in Fiji has now been in operation two years and nine months and already we find on a survey of the districts where these squat latrines were first installed that the buildings are beginning to fall into disrepair, that some holes are full, that others have fallen in except in suburban Suva areas where they are well maintained by frequent inspections..

Any system of sanitation needs regular inspections. This is even true of water borne sewerage; much more so, when a new system of sanitation is installed among simple people like the Fijians and Indians. The present system suits their needs, is well received by them, and month by month is growing into more regular use. But the fact remains that the expenditure of time, money and energy on the part of the Government and on the part of the people will be partially wasted and the work will have to be done over again unless some system of inspection is carried through.

Cook Islands Latrine Campaign.—Work in the Cook Islands was concluded in November and December. It was originally planned for three years, but was completed in a little over two years, due to the energy of the field inspector, Mr. C. F. Cowley. Work was inaugurated in October 1932, and has proceeded as planned through six islands of the Lower Cooks one latrine being installed at each house with spare latrines being left to supply new houses and to replace breakages. In addition adequate latrine accommodation has been provided for each school and also at places of native public meeting.

It was found impossible to instal Bored Holes in the Cook Islands on account of the nature of the soil. Instead holes were dug for each installation three feet in diameter and twelve feet deep. This hole is covered by an octagonal slab four feet four inches in diameter by four inches thick, with an oval opening one foot ten and a quarter inches in length by one foot five and a quarter inches wide. The pedestal is oval being one foot four inches high with an opening one foot in diameter in the seat. The pedestal is fitted with a galvanised iron lid to make it fly tight. There is a ventilating pipe made of 22 gauge galvanised iron, six feet by two inches the pipe being fitted into a hole made in the top of the pedestal.

The Maoris of the Cook Islands are highly intelligent people and in many ways the most modern natives in the Pacific and most ready to adapt themselves to modern life. There is little to say about the Campaign in general because there was such fine co-operation between the natives, Government officials and the direction of the work. Everything ran smoothly enabling us to save almost one year of the three years planned.

The statistics follow:

	Completed.	*To be installed.*	*Spares left..*
Raratonga	919	20	102
Aitutaki	312	..	50
Mangaia	312	..	18
Atiu	195	..	10
Muake	142	..	10
Mitiaro	49	..	..
Totals	1,929	20	190

The total number of latrines made from October, 1932, to 31st October, 1934, is 2,119.

This leaves the lower Cook Group with entirely adequate soil sanitation subject to some system of inspection to maintain it at its present standard. Throughout this latrine campaign there has been perfect co-operation for which great thanks are due to the Secretary for the Cook Islands, Mr. S. J. Smith, the Resident Commission Judge W. F. Ayson, and the Treasurer for the Cook Islands Mr. W. Tailby. Dr. C. S. Ellison, Chief Medical Officer, guided the campaign in the technical details.

Notes on Bored Hole Latrines.—Where these are covered with a squatting slab there are no objectionable features. When the people demand a higher standard of construction as with a riser, seat and a flapcover, obnoxious features arise. The worst is the continued growth of cockroaches in the riser under the seat which we have not been able to eradicate. Families who are careful to close the lid and who keep the latrine clean have no trouble. There is less trouble where the bottom of the pit is below the level of subsoil water. In some areas a few tablespoonsful of crude oil are used to control mosquito larvæ in such wet latrines. A cheap answer to the cockroach problem is yet to be found by us. Burning paper or grass in the hole and adding napthalene powder helps.

Samoan Yaws Campaign.—This campaign was concluded early in 1934. A full report is appended to this Annual Report.

Fiji Yaws and Ringworm Campaign.—After the co-operative campaign of the Fiji Medical Department and the Rockefeller Foundation ceased in 1931, the Fiji Government continued this work with a unit consisting of a Native Medical Practitioner and an assistant. For convenience in administration this work was left under the charge of the Western Pacific Health Service. The report of N.M.P. Malakai Veisamasama for the year 1934 follows:—

REPORT BY MALAKAI VEISAMASAMA, NATIVE FIELD DIRECTOR.

Sir,

Suva, 4th January, 1935.

I have the honour to submit herewith my report for the year ended 31st December, 1934.

I worked the provinces of Macuata, Bua and a part of Cakaudrove from January to July, and was called to return to headquarters. On my arrival in Suva in July, I was instructed and sent to Wainibokasi to try out Phenyl-Mercuric Nitrate on cases of Ringworm and it is regretted that this trial treatment for ringworm was uncompleted as I was again called to proceed to Rotuma where I remained for 2½ months and returned to Fiji early in November. Tuberculin injections were also given to natives at Tokatoka before my departure for Rotuma. I have an impression that the results of Tuberculin injections given at Wainibokasi shown in Table 3A, and at Rotuma were unsatisfactory compared with results obtained from injections given early in December shown in Table 3B at Toga and Wainibokasi and I am therefore bound to believe that the Tuberculin used during the previous occasions was in a way being too old to use.

TABLE 1.—YAWS INFECTIONS AND TREATMENTS, 1934.

	Census.	Examined.	Infections.							Treated.
			1	2	3	4	5	6	7	
Fiji ..	12,208	8,288	.	11	61	..	..	..	..	291
Rotuma	2,665	2,160	.	162	173	975	596	167	44	888
	14,873	10,448	.	173	234	975	596	167	44	1,179

TABLE 2.—T.A.B. INOCULATIONS, ROTUMA.

Total population.	Inoculations.		
	1st.	2nd.	3rd.
2,665	2,333	2,167	4,500

TABLE 3.—TUBERCULIN TESTS.

Age.	1st. Injections.			2nd. Injections		Total No.	Total No.	Total %
	—	+	%	—	+	+	Tested.	
				Fiji A.				
Adults ..	44	106	29·33	30	30	74	150	49·33
6–16	12	54	18·18	2	18	14	66	21·21
0–6	6	16	27·27	6	5	12	22	54·54
				Fiji B.				
Adults ..	35	8	81·39	2	.	37	43	86·04
6–16	31	15	67·39	1	3	32	46	69·54
0–6	9	3	75·00	..	..	9	12	75·00
				Rotuma.				
Adults ..	162	333	32·73	186	76	348	495	70·30
6–16	97	465	17·25	153	238	250	562	44·48
0–6	27	200	11.89	11	146	38	227	16·70

TABLE 4.—HOOKWORM TREATMENTS, FIJI.

Census.	Treated.	Absentees and under medical reasons.
12,208	7,075	5,133

The following extract of a report by Dr. V. W. T. McGusty, Acting Chief Medical Officer, on Malakai's work in Rotuma is of interest in gauging the capacity of a good Native Medical Practitioner.

> ### NATIVE MEDICAL PRACTITIONER MALAKAI AND CAMPAIGN WORK.
>
> Native Medical Practitioner Malakai was sent to Rotuma on the 19th August on special duty. His work was completed just prior to my arrival and in time to enable him to return by the " Pioneer." During the 2½ months of his stay in Rotuma 577 cases of yaws were treated with 888 injections of Neo-Kharsivan; 1,333 cases of scabies and other skin diseases were treated and instructions in methods of treatment were given to the people; 566 blood examinations were made for filarial infection, out of which 110 day and 80 night positive results were obtained; 2,333 of the people were given protective inoculation against typhoid; 1,296 were treated for tuberculosis, of whom 644 gave positive results equivalent to a 49·7 per cent. infection of those examined, and finally, as far as conditions permitted, a leprosy survey was made of the island. The local Native Medical Practitioner worked in co-operation with Malakai throughout the campaign.

Central Medical School.—The enlarged Central Medical School concluded its seventh succesful year with a graduation ceremony conducted by His Excellency, Sir Murchison Fletcher, in the War Memorial Hospital, in the latter days of December. There were ten graduates which included one Tongan,two Samoans, one Rotuman, one Ellice Islander, one East Indian, and four Fijians. His Excellency emphasised from reports he had received from the different groups, the increasing usefulness of these native medical men. It is too early for us to expect, as yet, from lay administrators, a full realisation of the ability of Native Medical Practitioners and the full extent to which their services may be used, in groups where this system is a new one; though it is pleasing to see that slowly and surely the Native Medical Practitioner is taking his place in each group. Besides the difficulty of educating lay administrators is the greater difficulty of convincing the qualified medical officers, who have had no previous experience with this system, how much reliance can be placed on our graduates. A lack of confidence on the part of lay administrators and qualified medical officers can ruin an aspiring and hopeful young Native Medical Practitioner. It is interesting, however, to one who visits the different groups from time to time to see how our young men are gradually assuming responsible and respectable positions in their communities.

During December the Rockefeller Foundation announced that it had given a subsidy of £2,200 to the Central Medical School to erect a new pathological and bacteriological laboratory in connection with the School. It will be a building 70 feet long and 30 feet wide. At one end there will be an adequately equipped post mortem room 13 feet long across the whole width of the building. The rest of the building will be divided into a small pathological laboratory a biochemical laboratory and a bacteriological laboratory. It will have a pathologist with a bacteriological technician and assistants under him. The pathologist will be an additional tutor in the School. This new equipment will advance the teaching facilities in pathology, bacteriology and public health; it will permit the study of certain South Pacific diseases which previously could not be investigated for lack of this equipment.

During December, also, a gift of thirteen hundred pounds weight of medical books was announced from the New York Academy of Medicine through the intervention of Dr. Frederick Peterson of New York. This with the Academy's previous gift, and gifts from Dr. Peterson, Dr. Victor G. Heiser and Mr. Templeton Crocker commence to make for us a very respectable library.

Too much praise cannot be given to the honorary staff of lecturers at the Central Medical School, who, year by year, appear to take a keener interest in their work and a deeper appreciation of its possibilities. During 1934 especially the Superintendent of the War Memorial Hospital has devoted a great deal of time not alone in his lectures but in most valuable daily clinical instruction throughout the hospital on his rounds.

The fifth number of the " Native Practitioner " was issued in February, 1934.

United Medical Service.—During the past few years there has been a growing feeling that there should be a unified medical service among South Pacific Groups. These groups are each of them small and only Fiji has had a real career to offer medical men.

The isolation of medical men in other scattered groups, the lack of future promotion in them, the subordination of their plans and efforts oft-times to unsympathetic lay control has made them feel that they were in a dead end. This condition has limited sharply the source of supply so that the question of securing medical officers and often the question of getting rid of unsuitable ones has been perplexing to administrations. New Zealand is especially interested as her medical schools do not teach tropical medicine and hygiene and she has the two tropical dependencies of the Cooks and Samoa; Tonga bids separately for what she can get in New Zealand and Australia; the Solomons and the Gilberts have trying climates where it would be difficult to pass a whole medical career. Australia with its two tropical dependencies and its excellent new school of tropical medicine also has food for thought in this service. Australia and New Zealand both might find this an added outlet for their medical men.

Such a plan would double in number the present Fiji medical service. All the groups would have access to the same quality of man which Fiji has. If the service were doubled this standard ought to be higher, because positions would be more desirable. In cases of friction transfers could be easily effected. Men in more trying climates could spell or transfer to better climates which run in the South Pacific from the equator to subtropical. There would result a valuable exchange of experience. Through the whole range of curative and preventive medicine there would be a great quickening of interest, thought, and action.

Such co-operation would not be a new thing. For a number of years past these same groups have co-operated in the Central Medical School for native practitioners and most of them in the Makogai Leper Island with complete harmony

In 1928 this plan was accepted in principle by the Colonial Office for the High Commission groups of Fiji, the Solomons and the Gilberts and Ellices in so far as all medical officers coming out agreed to go where they were sent in the High Commission groups; the Chief Medical Officer, Fiji, was appointed as Central Medical Authority for these groups and medical men could have their work reviewed by him in case of question could approach through him the High Commissioner. Meanwhile, Samoa, the Cook Islands and Tonga became keen to participate in this plan.

This plan has now reached the stage at which the Colonial Office is agreed that it is good in principle for the High Commission Groups and it awaits adjustment as to the detail of its organisation.

In the discussion that has gone on the place of Tonga, Western Samoa and the Cooks in the scheme has been overlooked. The plan will have far greater success if they are included. The Director of the whole scheme the Chief Medical Officer, Fiji would not be burdened by administrative medical details within any of these groups acting more as an advisory authority and his office as a clearing house for the interchange of medical information, medical administrative consultation, and of medical personnel. Fiji, Western Samoa, and Tonga are closely bound up in their disease problems. Graphs drawn of their epidemic rates for many years to 1933 show that rises and falls of the death line with a variation of a few weeks are identical. They have co-operated harmoniously in the Makogai Leper Island and the Central Medical School; their participation, if it can be secured, in the unified medical scheme would strengthen it; it would be of mutual benefit to all groups; it would be merely a logical extension of the present pleasant medical relations. The subsidy of the Rockefeller Foundation for the new pathological and bacteriological laboratory was predicated on this centralisation of public health and preventive medicine.

Tuberculosis.—During the year it was not possible to carry out much of this work. The Fiji Yaws and Ringworm Campaign did some tuberculins in Fiji and Rotuma. The Rotuma injections will be repeated as it is felt that the old Tuberculin used had deteriorated. In the next period it is planned to make extensive tuberculin surveys in the Gilberts and Ellices, in Tonga, and in Fiji.

Leprosy.—After a number of years during which the Gilberts and Ellices have made inadequate efforts to care for their lepers, these are being transported to the leper island of Makogai early in 1935. New Zealand, Fiji, Tonga, Gilbert and Ellice Islands, Western Samoa, Niue and the Cook Islands co-operate in the island of Makogai in the Fiji group where lepers receive treatment and care unsurpassed in the world and where there is a measure of contentment impossible to understand by one who has not seen it. These participating groups are entitled to the highest credit for their foresight in co-operating to handle a situation which no one of them can do so well alone.

In spite of this fact, there is little accurate knowledge of the extent of leprosy in the South Pacific. No survey has ever been made in any group by men skilful in diagnosis and with adequate scientific equipment. On a recent hurried survey of Rotuma among a population of 2,500, Dr. V. W. T. McGusty by visual and manual inspection sorted out enough lepers with those already in Makogai to amount to over 2 per cent. of the population. About half of these are considered to be infectious. In the Solomon Islands on the savage island of Malaita 100 miles long and 20 to 30 miles wide, which has been little explored, a survey was made from which a 1 per cent. infection with leprosy was estimated in a population of 44,000. In this group there are one to two Government medical officers and two Native Medical Practitioners. The finances of the Colony offer no possible hope of attempting to deal with the situation. As has been said there are no adequate facts concerning leprosy in the South Pacific. Probably also there is no place in the world where the etiology and epidemiology of leprosy can be so well studied as in certain small atoll islands in the South Pacific, which are almost isolated from communications so that the whole factors of the problem can be seen without extraneous complications. Here fresh cases are presenting themselves each year since the eighteen eighties.

An outline for a leper survey of the Pacific is on file by Dr. A. E. Neff, C.P.H., now Senior Medical Officer of Cyprus, who had six years experience at Makogai Leper Island and who has inspected leper conditions in several other countries.

Visitors.—Some of the Western Pacific groups have had this year an extended survey by Dr. V. G. Heiser of the Rockefeller Foundation, who spent time in New Zealand, made surveys in Fiji, in Tonga, in Western and in American Samoa. The stimulus of his visit has been very evident. In September and October, Dr. M. H. Watt, Director-General of Health in New Zealand, made a short survey of health efforts in and around Suva, and a visit to the leper island of Makogai. The Director accompanied Dr. Watt for an extended survey of Western Samoa of nearly a month's duration. Surveys and criticisms of such men as Doctors Heiser and Watt are most valuable for the mental stimulus given to medical men in the area and for maintaining helpful and friendly relations between neighbouring groups.

Dr. Francis M. Root.—This department wishes to register its loss in the death of Dr. Root, Professor of Entomology in Johns Hopkins. We have been sending him mass collections of mosquitoes from the South Pacific for over eleven years which he cheerfully classified for us. It must have been drudgery though he reported a keen pleasure in it. Entomologists would get greater quantities of material if they exhibited the courtesy and promptness in reporting which characterised Doctor Root who unfailingly sent us on a detailed report which could be passed to the interested administrations. Usually the scientist gets the specimens and completely forgets the poor devil who has sweat his soul-case out in the field procuring them; then he wonders why the field man takes no interest in collection.

Dr. Root was waiting for the flow of specimens to cease to write a monograph on Pacific mosquitoes; one hopes that his death will not preclude the report.

REPORT ON WESTERN SAMOA YAWS CAMPAIGN, 1932–34

In April, 1932, a two years co-operative yaws and sanitation campaign was inaugurated between the Administration of Western Samoa and the Rockefeller Foundation.

It was decided to make a round of the whole colony each year for two years giving two injections each year to each person who presented signs or symptoms of yaws and to such others who had yaws history, and who desired it.

It was hoped that this treatment would reduce the mass amount of infective yaws by sealing infective lesions and bringing this disease under such a measure of control as would permit it to be handled by the normal staff.

It was planned to get a passably complete census of the group which had not been obtained since 1926.

It was hoped to instil a renewed interest in soil sanitation and in preventive medicine among the Samoans.

Historical.

> Wilkes in 1839 describes an eruptive complaint called Ilamea, which covers many of the children under the age of ten years and particularly attacks the face and head. He says: " The mode in which it is treated is singular; the child is rubbed with the husks of the coconut until all the scabs are removed; a soft preparation of breadfruit is then

applied, after which they are washed." This has been the Samoan method of treating yaw papules until quite recent times, and may even now be practised in some of the outlying districts. The word " ilamea " was probably used in mistake as the Samoan uses it only to describe the disease called tona (the present Samoan word for yaws) which attacks the native children almost without exception. Kraemer believes that the disease has long been endemic in Samoa, because the oldest word that the Samoans have for the disease is patu, which is the word used in the Sunday Island for yaws. This would indicate that the Samoans acquired the disease when they were in contact with this race—probably before the time of their migration to the Samoan Islands. On the other hand, Pratt gives the meaning of patu as a " fatty tumour " and does not mention it in connection with yaws. Koniger believed that the introduction of yaws into the Samoan Islands was quite recent.

" In trying to arrive at any decision in this matter two points seem worthy of note:—(1) That every description of the disease in Samoa states that it is practically entirely a disease of childhood, indicating a long period of endemicity.

" (2) The Samoans certainly had an old name of lupani for the disease, which was used before tona—the latter word probably came into use during the Tongan wars, the last of which occurred many years before the recorded arrival of Europeans in Samoa, and this is the only authentic record of an early contact of the Samoans with a foreign race.

" (3) On the whole, the evidence seems to point to yaws having been long endemic in Samoa, and probably the Samoans either brought the disease to these islands or acquired it soon after they arrived." *

THE TREATMENT OF YAWS IN SAMOA BY EUROPEAN MEDICINES.

" Davies in 1892 reports that he successfully treated the chronic ulcers of the Samoans. Kraemer in 1902 used potassium iodide and a local application of salicylate as he states that he did not like to give mercury to children; but the effect of this treatment was reported successfully merely on observations of a single case of secondary yaws rash. In 1910 Poleck stated that he was obtaining cures in twenty days by the use of potassium iodide 0·59 gramme and calomel by 0·01 gramme internally and mercurial ointment for ulcers. The cures by these methods do not appear to have impressed the Samoans, as they continued to favour their own method of treatment. Shortly before the Great War the German doctors started to give injections of arsenical compounds of the salvarsan type. These injections were probably given to only a very small proportion of the population but were becoming popular amongst the Samoans.

" During the military occupations of Samoa by New Zealand troops army doctors were sent round the island to give novarsenobillon injections whenever it was reported that yaws was prevalent in a district. On these expeditions a single injection was given, and usually no charge was made. This did a great deal to popularize this method of treatment. When the Civil Administration was formed in 1920 these expeditions were continued, but it was noted that the effect of the injections did not last very long in a district. In order to try and make the cures more permanent each case was given three doses instead of one, but as the cost of the drug was becoming a large item in the medical expenditure, it was decided to try and enforce the payment of fees for the injections. This caused a serious falling-off in the number of cases treated. It was then decided to do the children free, but charge the adults the cost of the drug used; but even this led to very little improvement in the number of cases treated.†

The desire for this method of treatment played a great part in gaining the Samoans' support for the passing of the Samoan Medical Tax by which every male eighteen or over paid a medical tax of one pound a year and for this every Samoan received free medical attention. From 1923 to 1926, 75,000 injections were given. The brilliant results to be obtained by systematic treatment of yaws were now well demonstrated. Such treatment throughout the colony was commenced in April, 1923. Between this date and the end of 1926, 75,581 injections were given. Three injections were given to each patient; thus over 25,000 persons out of a population of 40,000 were treated in four years. At the end of that time nearly all the people coming forward for injections were tertiary cases; the primary and secondary cases constituted a very small minority of those treated. In one isolated district having a population of 35,000 only three cases were primary and fifteen secondary in a total of 236 cases treated. Four years earlier 1,900 cases were treated from this district. Prior to the introduction of systematic treatment, practically every child contracted yaws before the age of two years. At the end of 1926 very few of the 6,000 children in the colony, under the age of four years had to be treated for this condition. At that time it seemed that the primary and secondary cases were about to disappear. Unfortunately, the political disturbances, which began the following year, put an end to this fine work of preventive medicine, though free injections were still offered and given until 1929. But treatment parties could no longer go out into the disturbed districts.

A few thousands were given each year to those who presented themselves at the hospital. After 1929 a charge was made for an injection and the number fell to a small one. By 1930 and 1931 the primaries and secondaries which seemed on the point of vanishing in 1927 seemed to

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* (The name tona or a variant is found in every Polynesian Group I have visited except Rennell and Bellona Islands. But during the period of Greater Tonga, those splendid navigators and warriors penetrated most of the South Pacific probably imposing their name for yaws on conquired and allied people. LAMBERT.)

† The Treatment of Yaws in Western Samoa by John S. Armstrong, Samoan Annual Medical Report, 1925.

sprout almost like mushrooms in every direction; secondary and tertiary ulcers abounded. It was sickening to the point of nausea to see these lovable Samoan children relapsing into the loathsome disease which mars their beauty and destroys their bodies.

Yaws Campaign.—The yaws campaign was directed locally by the Chief Medical Officer, Samoa, with rare visits by the Field Director of the Rockefeller Foundation. Two field units, aided at times by a third unit did the actual injection work and took the more complete census of the second year. The census was checked against the native pastors' records as far as possible which are the only written ones available for the past seven years. Every native is an adherent of one or another Church. We are grateful to these pastors for their assistance. Each unit consisted of a Samoan medical practitioner, a graduate of the Central Medical School of Suva, Fiji, assisted by a Hospital cadet. The bulk of any real credit for actual work done must be given to units headed by Samoan Medical Practitioners Ielu, Togamau, and Fatu who did this work with a true professional spirit and an unequalled industry. Each village was entered, a census taken and injections given—the unit moved on to a second and third village and so on till the end of a week when the return was made on Saturday afternoon to Monday's village when a second injection was given and so on through the villages of the previous week.

The drug used was (N.A.B.) neoarpshenamine (Merck). The dose was 0·1 gramme dissolved in 1cc of water; half of this amount was given to weakly children under one year, the full amount to stronger children; a proportionate dosage according to age with a maximum adult dose for women of 0·5 gramme, and for adult males of 0·6 gramme. Size and apparent age were considered. After the first year of work buttock injections were omitted. When a vein could not be found in young children the dose was injected into a jugular or epicranial vein. Boiled rain-water was used in making drug solutions.

Comment on Injection.—Some idea of the rate of infection found at the beginning of our work in Samoa may be gathered from the report of the first year.

TABLE 1.

Examined.	Infected.		
	1	2	3
39,049	830	13,431	9,418

Total with open lesions 22,679 or 58 per cent.

Some districts were more heavily infected. For instance, in the district from Apia to Falevao:—

TABLE 2.

Examined.	Infected.		
	1	2	3
4,618	141	2,308	1,762

This totals 4,211, a percentage of 91 per cent. of those examined with open lesions.

The first round of the colony was begun in April, 1932, and completed in December, 1932.

TABLE 3.—STATISTICS 1932.

Census.	Examined	Yaws History.		Infection.			Treatment.		Total.
		Neg.	Pos.	1	2	3	1	2 & others	
43,925	39,049	3,526	26,448	830	13,431	9,418	38,166	35,922	74,088

DISCUSSION.

Everywhere the injections were received with enthusiasm. During the first year we treated all who presented themselves asking for an injection whether they had visible lesions or not if they claimed having had yaws even if their symptoms were not pronounced.

It will be seen that 88·8 per cent. of the estimated population presented themselves for examination, and that of this number 97·7 per cent. received the first injection. It is doubtful if much reliance can be placed upon a Yaws History as judging by the results of Kahn Tests taken during 1933–34 it would appear that nearly all of the Samoan population have had yaws at some period or other. These Kahn Tests will be discussed in a later section. The type of case presenting itself for examination and treatment was of a virulent nature.

In 1932 we had the misfortune to have coincident with our beginning an epidemic of poliomyelitis which lasted for several weeks. This broke out first in the areas in which we were beginning work. The rumour of this poliomyelitis, which was at first attributed to the injections, did not spread rapidly, and we were able to do nearly complete work on the 1932 round. In 1933, however, a great deal of our work was nullified, as our statistics show, by this mistaken idea that the paralysis of poliomyelitis was due to our yaws injections.

TABLE 4.—STATISTICS 1933.

Census.	Examined.	Yaws History.		Infected.			Treated.		Total.
		Neg.	Pos.	1	2	3	1	2 & others.	
48,300	29,931	8,627	16,926	358	9,865	4,009	20,016	18,629	38,644

DISCUSSION.

Beginning in April, 1933, and concluding in December, 1933, the second round of two injections each was carried out. People did not present themselves so freely. This was due, as we have said, largely to the epidemic of poliomyelitis of the previous year.

It was found that there was a decided improvement in the condition of the lesions of yaws as compared with the previous year, though a good many cases were met with which show considerable resistance to treatment. The Campaign emphasises the necessity for further and more prolonged treatment of yaws which evidently lies latent for months and even for years at a time.

Census.—One of the valuable by-products of the yaws campaign was a fairly accurate census of Samoa which had not been taken by the Government in 1931. The estimate census of native Samoans to the end of 1932 based on the registration of births and deaths, &c., for

Samoa was 43,147. Our 1932 census showed 44,126 native Samoans. This census on Savaii was about 15 per cent. more than the Government estimated population for that island. But on Upolu we met with difficulties which were in a measure overcome in 1933 when we obtained a census of the whole group of 48,300 native Samoans by island, district, village, estimated age and sex. We feel confident that this census is still too low, and that there are probably 50,000 native Samoans.

For one thing our census was a nine months affair from April 1st to late in December so that it does not take into account the excess of half of the nine months' births over half of the nine months' deaths.

The population on the 1st January, 1926, was 36,688. Since that time eight years have passed without an epidemic of any sorts. It is reasonable to suppose that the birthrate has kept between 52 and 56 with the access of nationalism and that the deathrate has kept as low as 20 per thousand mark, which checks again fairly well with our estimated census of 48,300 taken during the yaws campaign of 1933.

Untoward Results.—The following untoward happenings were reported by the Native Medical Practitioners who did the injecting:—

1. A Samoan boy, five years of age, died a few days after receiving his second injection; on inquiry it was found that he had had ' fits ' for some months previous to injection, which fact was concealed from the native medical practitioner by the father.
2. A Samoan girl of twenty—a chronic cardiac case—had her two injections in separate villages and after the second injection did some strenuous grass cutting followed by washing in the river, with the result that she collapsed the same night and died.
3. A young Samoan women of twenty-five was admitted to the Apia Hospital fourteen days after second injection in a moribund condition, with every symptom of a cerebral tumour. She was taken away from the Hospital and died the next day.

It is not clear that neoarsphenamine can be the cause of death of any of the above cases, except possibly the chronic cardiac case. Of the untoward symptoms occurring occasionally during the treatment of yaws, none were reported.

Obdurate Yaws.—Table (5) is a record of eight cases treated as patients in the Apia Hospital. Except where otherwise stated these had received the two field treatments of 1932, also the two field treatments of 1933. Attention is called especially to the Kahn Test of case one. N.A.B. is neoarsphenamine. Bicreol is a bismuth preparation which contains 0·15 gramme of metallic bismuth per cc. in a creocamphor base.

Many cases resisted the field treatment given routinely. Some of these were treated in the Tuasivi hospital out-patient departments. One hundred and five obdurate cases were treated there. Table (6) shows 35 of these which were more resistant, the period of treatment and the results.

It must be understood that these patients had two routine field treatments in 1932 and two routine field treatments in 1933. While dosage is not stated in the table it was the same for age as given under the previous table.

TABLE 5.

No.	Age.	History.	No.	Treatment alternate weekly injections of—		Remarks.
				N.A.B.	Bicreol.	
1	18	Secondary yaws 1932; July, 1933 no improvement; October 3rd, 1933, crab yaws and hyperkeratosis; difficulty in walking. Had received routine treatment of N.A.B.	6	3 of 0·5	3 of 2cc	Lesion diappeared Kahn Test after two months. ++++
2	10	Two injections of N.A.B. (routine) 1932—no symptoms; developed yaws, May, 1933, profuse secondaries, September, 1933	15	8 of 0·2	7 of ½cc	Lesions disappeared.
3	5	Secondaries, August, 1933; September, 1933, profuse secondaries one week after two routine treatments	7	4 of 0·2	3 of ½cc	Lesions disappeared.
4	5	Secondaries, 1933; lesions increased in number and size after routine treatment	6	3 of 0·175	3 of ½cc	Lesions disappeared.
5	11	October, 1933, lesions extensive and ulcerating also routine treatment of two injections N.A.B. 0·3 three months before	8	4 of 0·3	4 of 1cc	Unna's paste locally and mist. pot. iod. discharged cured.
6	14	Secondaries, September, 1933; ulcer developed 4 in. X 3 in. on the right ankle two injections N.A.B. 0·3 prior to admission. Dose of CCl given prior to treatment	6	3 of 0·3	3 of 1cc	Unna's paste to ulcer and mist. pot. iod. Ulcer healed.
7	22	Chronic ulcer of the thigh. Duration two months. Injection of 0·5 N.A.B. prior to admission. No improvement. Dose of CCl given on admission	6	3 of 0·5	3 of 1cc	Ulcer healed.
8	5	Secondary yaws, May, 1933. Two routine injections 0·2. No improvement, further lesions in September	6	3 of 0·2	3 of ½cc	Lesions disappeared.

TABLE 6.

No.	Age.	Diagnosis.	Alternate weekly injections.		Period during which treated in weeks.	Result.
			N.A.B.	Bicreol.		
1	6	Crab yaws ..	6	5	12	Not healed.
1a	10	Crab yaws ..	4	3	7	Not healed.
2	12	Crab yaws ..	3	3	6	Not healed.
3	10	Crab yaws ..	3	3	4	Not healed.
4	12	Crab yaws ..	3	3	6	Not healed.
5	1	Crab yaws ..	5	2	7	Healed.
6	17	Crab yaws ..	4	3	7	Not healed.
7	4	Crab yaws ..	4	2	6	Not healed.
8	2½	Crab yaws ..	3	3	5	Hyperkeratosis & ulcer crab yaws healed.
9	12	Crab yaws ..	4	3	9	Not healed.
10	7	Crab yaws ..	6	3	10	Not healed.
11	22	Crab yaws ..	3	3	10	Not healed.
12	6	Crab yaws ..	4	2	6	Not healed.
13	15	Crab yaws ..	3	3	6	Not healed.
14	10	Crab yaws ..	3	5	8	Not healed.
15	5	Crab yaws ..	3	3	6	Not healed.
16	16	Crab yaws ..	3	3	6	Not healed.
17	6	Primary yaws ..	6	.	6	Secondary yaws developed.
18	6	Primary yaws ..	12	.	12	Secondary yaws developed.
19	4	Secondary yaws.	3	3	6	Not healed.
19*a*	3	Secondary yaws.	4	2	6	Not healed.
20	6	Secondary yaws.	4	3	7	Not healed.
21	6	Secondary yaws.	4	4	8	Not healed.
22	13	Ulcer	3	3	6	Not healed.
23	11	Ulcer	3	3	6	Not healed.
24	20	Ulcer	7	6	14	Not healed.
25	18	Ulcer	6	3	8	Not healed.
26	10	Ulcer	3	3	6	Not healed.
27	6	Ulcer	5	4	9	Not healed.
28	9	Hyperkeratosis .	4	3	8	Not healed.
29	10	Hyperkeratosis .	3	3	6	Not healed.
30	3	Hyperkeratosis .	3	4	7	Not healed.
31	12	Hyperkeratosis .	4	4	8	Not healed.
32	20	Hyperkeratosis .	4	3	7	Not healed.
33	12	Hyperkeratosis .	3	3	6	Not healed.
34	6	Hyperkeratosis .	2	4	6	Not healed.
35	5	Hyperkeratosis .	4	4	8	Not healed.

Kahn Tests.—The South Pacific is an exceptionally good place to study the manifestations of yaws and its treatment as no syphilis is found among the native races there and the problem of yaws is therefore uncomplicated.

It was generally believed for many years that yaws was a relatively mild disease and easily cured as compared with syphilis. It responds quickly to the arsenicals, sores and lesions starting to heal in a manner almost magical, after the injection of one of those, the natural assumption being that the disease is at the same time cured. Yaws is also a disease of the tropics where laboratories are not so common and are less utilised; it was many years before the results obtained by treatment of yaws were well examined by laboratory men. In 1932 we heard by correspondence that the work of the Jamaica Yaws Commission was demonstrating that the general opinion of the result of yaws treatment was incorrect, finding that it was very difficult to render the blood of the yaws patients negative. We then ran a series of Kahn Tests in schools on Upolu and Savaii in 1932, 1933 and 1934 to find the results obtained by treatment with routine injections with neoarsphenamine similar to those given under field conditions. We also ran series using paroxyl or spirocide. In all over 7,600 tests were taken in the two years.

KAHN TESTS WITH NEOARSPHENAMINE.

Papauta School.—In Papauta School thirty-one individuals received two treatments of neoarsphenamine (N.A.B.) and three Kahn Tests, one before and two after the two injections. It may be said that the Papauta girls' school is a selected group who are well fed and well cared for in the school with no untreated lesions except hyperkeratosis. The age range is from 12 to 18. Only six of the number of 68 who took the first Kahn had secondary lesions. Table (7) shows the results obtained.

TABLE 7.

Kahn Tests.	—	+	++	+++	++++	Total.
First Test	7	4	7	6	7	31
Second Test	15	5	5	4	2	31
Third Test	26	1	3	1	0	31

Six individuals were negative on every test so that the blood of twenty individuals out of twenty-five who were positive on one or the other test became negative by the treatment.

Marist Brothers' School.—This is a day school—no boarders. The following is the table of the results of the tests obtained at the Marist School. Out of the 143 boys originally treated from the Marist School of whom only 93 were present at the final Kahn Test, 46 showed active secondary lesions. Ninety-three individuals had the three Kahn Tests. One Kahn Test first, two injections of N.A.B., and then two Kahn Tests at intervals during the five months after. Of these 93 individuals eighteen were negative for all three tests. Deducting this eighteen from the 93 and from the 57 we find that 39 or 52 per cent. were made negative by the injections. The table shows the proportionate reduction in the various degrees of infection.

TABLE 8.

Kahn Tests	—	+	++	+++	++++	Total.
First Test	22	22	13	18	18	93
Second Test	44	25	15	9	. .	93
Third Test	57	22	10	4	. .	93

KAHN TESTS WITH PAROXYL.

Faleula School.—The first course of treatment consisted of 12 tablets (0·25 grammes each) of paroxyl. Second course of treatment consisted of 14 tablets (0·25 grammes each) of paroxyl. Under the age of fifteen half of the above doses were given. The ages ran from 12–17 years, most of them being 12–18 years.

First Kahn test 5th September, 1932, was followed by first course of tablet treatment next day; second Kahn test 17th October, 1932, followed by second course of tablet treatment 12th December, 1932; third Kahn test 2nd March, 1933. The state of infection may be judged by the fact that 21 out of 47 who had the original test had secondary lesions.

TABLE 9.

Kahn Tests	—	+	++	+++	++++	Total.
First Test	6	8	5	5	8	32
First Paroxyl Treatment:—12 tablets (0·25 grms. each).						
Second Test	9	7	6	4	6	32
Second Paroxyl Treatment:—14 tablets (0·25 grms. each).						
Third Test	26	1	4	1	0	32

Three were negative on every test. If we subtract this number from the negatives on all three tests as well as the total of 32 we find that the bloods of 23 out of 32 who completed the test were made negative by these two courses of paroxyl tablets. This shows a satisfactory result for the use of paroxyl.

PAPAUTA SCHOOL, 1933.

Tests with Paroxyl.—This is the well-cared for, well fed, and well treated group mentioned in the test with neoarsphenamine in 1932. In the whole 83 cases who completed treatment all lesions were late ones except two, one of these being a generalised yaws and one crab yaws. Forty-eight of this 83 were in the tests for neoarsphenamine in 1932.

TABLE 10.

Kahn Tests.	—	+	++	+++	++++	Total.
First Test	16	10	24	21	12	83
First Paroxyl Treatment:—12 tablets (0·25 grms. each).						
Second Test	25	16	22	13	7	83
Second Paroxyl Treatment:—14 tablets (0·25 grms. each).						
Third Test	26	15	19	10	13	83

Fifteen cases were negative on every test. Subtracting that number from the negatives shown above in these tests, and from the total of 83 shows that out of the 68 positives, eleven were made negative by the treatment. This is in contrast to the results shown in Faleula School above and may indicate that the early yaws shown in Faleula School yields more readily to paroxyl than the late lesions in the Papauta School.

From these tables it seems that neoarsphenamine has some advantage over paroxyl carefully administered. It is thought, however, that under our conditions, dealing with native people, paroxyl could not be so well used because the people could not be trusted to take the dosage or in the proper way.

Tests on Routine Treatment with Neoarsphenamine.—Seventeen hundred and ten individuals received one Kahn test; they then received two neoarsphenamine injections, one week apart; after a period of at least two months they received a second Kahn test; after another period of from two to three months they received the third Kahn test.

These people had all received two injections of neoarsphenamine the previous year. They were not all selected as having yaws lesions but were taken one after another as they came along whether they had signs or symptoms or not. One hundred and thirty-eight out of 1,710 were found negative on all three tests showing a percentage of over 91 per cent. positive for yaws.

We found that the personal history of yaws among these 1,710 people was somewhat unsatisfactory. Fourteen hundred and twenty-two or 83 per cent. of the 1,710 who received all three tests gave a positive history. Eighty-five who gave such a history were found negative on all three tests. Two hundred and eighty-eight gave a negative personal history; of these 231 were found positive.

We know that a large percentage of the population over five years old have received one or more courses of treatment for yaws, some of them many more previous to 1932. They all received at least two injections in 1932. The age grouping was:—0–3 years, 16; 4–18 years, 1,306; adults, 388. A table of these Kahn tests follows:—

TABLE 11.

Kahn Tests.	—	+	++	+++	++++	Total.
First Test	517	212	347	394	240	1,710
Two routine treatments with N.A.B. with weeks interval.						
Second Test	251	175	339	603	342	1,710
After two months.						
Third Test	379	225	320	480	306	1,710
After five months.						

We believe the technical work to have been done competently. We have puzzled over the interpretation of this table and we have none to offer. Our standard dosage seems to have caused an exacerbation of the disease. We simply give the figures as they were obtained. It is apparent that two courses, as given in 1932 and 1933 in Samoa, even coming after the other yaws work that has been done there, are not very effective in sterlising the blood of yaws patients. Apparently treatment lights up a quiescent condition which after a sufficient interval subsides, One hundred and thirty-eight individuals were negative on all three tests. In summarising the table of Kahn tests by degree of infection a number of weird results appeared. For instance 252 out of the 1,710 individuals were negative on the first test and after the two treatments became positive on the third test. Of the 1,710, 108 were negative on the first test, received two injections, and were positive on the second and negative on the third test. Eighteen were negative on the first and second and positive on the third test.

TABLE 12.

KAHN TESTS, 1,710 PEOPLE.

Individuals.	1st Kahn Test.	Received Two Treatments.	2nd Kahn Test.	3rd. Kahn Test.
232	negative	”	....	positive
108	negative	”	positive	negative.
18	negative	”	negative	positive.

One is led to the conclusion that a single, even a double negative Kahn test is not conclusive.

TABLE 13.

LESIONS FOUND IN 1,710 PEOPLE.

	Crab Yaws.	Crab yaws and Centralised yaws.	Crab yaws and Hyperkeratosis.	Hyperkeratosis.	Total.
First Kahn Test	64	16	103	582	765
		Two injections of N.A.B.			
Second Kahn Test	78	6	79	452	615
Third Kahn Test	70	6	72	397	545

Table 13 gives a record of the active lesions found in these patients. On the first Kahn test individuals had a yaws lesion. Five to six months later 545 of these individuals had a yaws lesion. It will be noticed that 582 of the 765 found infected on the first Kahn test had hyperkeratosis, “ cracked feet,” “ honeycombed feet,” &c., and are very resistant to treatment. Hyperkeratosis here defines also the late lesions of skin yaws of the feet.

Epidemic Poliomyelitis.—Infantile paralysis has been rarely reported in the tropics. In the Solomons, Carment in 1925, reported an outbreak of a disease characterised by paralysis and the disease he described would appear in all probability to have been poliomyelitis. Since that outbreak the disease has not been observed in the group until an epidemic in May, 1929, in which there were 260 cases and 53 deaths. These figures are not an exact measure of the extent of the outbreak nor of the number of deaths because there were undoubtedly many cases in the villages which were not reported and are not included in these figures. The epidemic extended from May, 1929, until the last known case occurred on 16th October. Hetherington comments on this epidemic:—“ Evidently conditions in the Solomon Islands are such that the disease cannot remain endemic here.” Hetherington reports this disease again in 1932 and in early 1933. Cases were confined to the plantation labourers in the Russell Group. Quarantine was enforced on the infected estates and the disease did not spread. There were no deaths.

In March, 1933, in the Ellice Islands, six cases of poliomyelitis were reported and one in June on Beru in the Gilberts.

No case has been reported from Tonga or Fiji, though they are in constant contact with two endemic centres, New Zealand and Australia. However, when the subject is brought up in Fiji, here and there in the Colony several cases are mentioned which were undoubtedly infantile paralysis. So far as I can find out no case has previously been reported from American or Western Samoa although from evidence deduced later it would be that it has entered these groups many years ago.

Beginning in February, 1932, seven cases of infantile paralysis occurred in American Samoa. This outbreak was controlled in the course of a month. On February 12th, 1932, on account of this infantile paralysis in Pango, travelling to and from American Samoa and Apia was suspended. On March 24th, 1932, travelling restrictions between the two colonies were lifted. During the first week in May, Upolu and Savaii people of the London Missionary Society denomination representing nearly all of the villages in Western Samoa, journeyed to the Mission headquarters in Malua, near Apia, Western Samoa on the island of Upolu, in connection with the big annual meeting of that denomination. Most of them were accompanied by their families. At this conference, also, representatives of the London Missionary Society in Tutuila, American Samoa, were present. After the conference closed, the people returned to their homes.

On April 18th, 1932, two yaws units, one headed by Ielu, Samoan Medical Practitioner, and one by Togamau, Samoan Medical Practitioner, began injections on the island of Savaii, the routine consisting of the injection of all the villages, one on Monday, another on Tuesday and so on until Saturday when the unit returned to the first village and gave second injections on Monday and so on through the week, when the unit moved on to a fresh village.

It must be understood that the island of Savaii is divided into many districts by natural obstacles which prevent easy communication. For instance, the first case of paralysis on Savaii occurred about May 2nd, a week after the second injection by Ielu and yet the first that Ielu heard of paralysis was reported to him on June 25th, after a great number had occurred in the areas he had left.

On the 1st June, the Chief Medical Officer examined several cases of paralysis at Falelima. At first the paralysis was attributed either to the drug or to the method of injection, as all cases first seen were paralysis in the lower limbs and all had had double buttock injections. Except for the Falelima cases which appeared to be connected with the injections no further cases were reported from Savaii until the middle of June when an investigation was made of the two areas involved. These two areas extended along about 70 miles, one half of the coast line of Savaii, No cases of paralysis were discovered during the round of Savaii made in 1933 outside of this area. This area has been surveyed twice by Ielu, Samoan Medical Practitioner, the second time in June, 1934. Ielu saw 138 cases of paralysis. In the area during the period that paralysis was occurring, 1,766 children under five years were injected. Of these 7·8 per cent. were paralysed. No two were in the same family. In this area there are 39 villages. These villages were injected in regular order one after another. In 37 villages where injections were carried out, paralysis occurred. A survey shows no record of paralysis in other areas of Savaii.

To understand the situation one must know that there has been little regular reporting of births, deaths, and illnesses in Samoa during the past seven years. It has been impossible to compute the number of cases of poliomyelitis in this area.

The age grouping of those paralysed was from four months to five years as follows:—

TABLE 14.

AGE GROUPING INVOLVED IN POLIOMYELITIS.

4mths.	5mths.	6mths.	8mths.	9mths.	10mths.	1yr.	1½yrs.	2yrs.	2½yrs.	3yrs.	3½yrs.	4yrs.	4½yrs.	5yrs.
1	1	7	7	2	1	35	33	17	9	7	7	8	1	2

It is believed that the list of paralysis in this area is now reported completely and that the deaths are all reported.

A careful checking of the situation has shown that the outbreak was not confined to Savaii alone. One case, at least, can be traced directly to the London Missionary Society conference where she must have acquired her infection. There were some cases of paralysis which did not receive injections; some of those paralysed received only one injection. Most of them occurred from one to two weeks after the second injection. One child was seen in 1932 on Upolu who was already paralysed the year before in the left limb and with abdominal hernia on the same side. There is a record also of a case of paralysis in 1933 near Aleipata, Upolu. During the 1932 campaign scarcely a child from a few months to adolescence was not injected; so all illnesses succeding the campaigns were debited to it.

SUMMARY OF POLIOMYELITIS EPIDEMIC OF 1932.

Number of villages affected from Papua, East Coast to Setaua, North-West Coast, Savaii	37
Number of villages in this area not affected	2
Estimated number of cases of poliomyelitis	150
Cases with paralysis seen	138
Deaths in 0–5 group in this area during the period suspected of having had poliomyelitis	12

REPORTED CAUSES OF DEATH.

Fever and paralysis	4
Fever	5
Paralysis	1
Other Causes (unknown)	2
Number having poliomyelitis unknown	..
Injected in age group 0–5 in this district	1,766
Percentage of group having paralysis estimated at 150 equals	8·5%
Two cases not injected at Iva, Savaii, paralysed	..
One case not injected acquired infection at Malua, Upolu, paralysed	..

PROBABLE PREVIOUS CASES OF POLIOMYELITIS IN SAMOA.

One case injected three times in Apia Hospital fourteen years ago developed paralysis of right leg—leg wasted now. Two cases injected at Tuasivi Hospital, Savaii, ten years ago—developed paralysis. Two cases not injected at Nagomalo eight years ago, developed paralysis. One case injected at Aleipatu Hospital, in 1931, paralysed in left leg in 1932.

It is obvious that the paralysis and injections cannot be related. It also appears that poliomyelitis must have entered Western Samoa at least 14 years ago. In this connection a conversation with Commander C. S. Stephenson, Senior Medical Officer of American Samoa, is interesting. In October, 1934, he told me that he had been able to trace cases of poliomyelitis back to the year 1919, which checks fairly well with the cases reported as having developed poliomyelitis in the Apia Hospital 14 years ago.

TABLE 15.

PRESENT CONDITIONS, 1934.

Both legs.	Both legs arms & body.	Right leg.	Left leg.	Total.	Improving.	Normal.	Stationary.	Not seen.
34	7	55	42	138	67	16	43	12 = 138

Needless to say the report of this unfortunate epidemic had a very disastrous effect on the second round of injections during 1933. The injections of our campaign were blamed for these paralyses and people in very smaller numbers as our statistics show were willing to come forward for the injections. Six months after the campaign finished the open infective lesions remaining were especially noticeable in the districts where the poliomyelitis had occurred.

SUMMARY.

This campaign improved the yaws situation in Samoa very much over the condition which existed before the work began. It was not effectual in reducing the amount of yaws to the level obtained in 1925. A final inspection of two districts on Savaii, Fagomalo and the Tuasivi districts showed many open infective lesions remaining which amounted in the Tuasivi district, among children of school age, to about 10 per cent. These lesions were fewer in the Fagomalo district and in the Falefa district lying to the east of Apia. The Tuasivi district was one of those involved in the infantile paralysis epidemic. There is a possibility that our Samoan Native Practitioners erred on the side of caution and reduced dosage somewhat after this epidemic. This would have been quite natural, as they or their drug had been blamed for the epidemic.

This campaign with its Kahn tests settled the question in our mind of the possibilities of eradicating yaws by mass treatment. It cannot be done in this way in so large an area. Where yaws is so prevalent as in Samoa, mass treatment is a valuable factor in reducing mass infection but it needs to be followed by cleaning up the individual cases as they recur one by one.

We feel that yaws has now been reduced in Samoa to a point where it can be kept within reasonable limits if follow-up work of this character is done, which keeps the infective lesions sealed.

Our Kahn tests destroy the fond illusion that yaws is a mild disease which a few injections cure. If yaws offers immunity to syphilis it will be two generations at least before the question of syphilis implanting itself on a yaws-free population arises in Samoa; until an unborn generation grows to adulthood in a Samoa free of infectious yaws lesions.

We report an epidemic of poliomyelitis in Samoa.

There are over 50,000 Samoan natives on two large and two small islands. On the large islands, there are almost no harbours and few roads. Population is well divided by natural obstacles into districts which have scant communication with each other or with the capital, Apia. Disease will only be handled here by natives trained to take care of their own people continuously in simple medicine and surgery. Until one of these is made readily available to every home in Samoa, yaws, roundworm, hookworm and soil pollution diseases will continue to flourish and the country will continue to be threatened with epidemics difficult to control.

Acknowledgements.—This campaign was administered by Dr. Ernest Hunt, Chief Medical Officer, Western Samoa, and carried out by Samoan Medical Practitioners Ielu, Togamau and Fatu. The Kahn tests were carried out by J. G. Peddie, bacteriologist to the Medical Department of Western Samoa. I must make an especial mention of the epidemiological survey of the poliomyelitis epidemic carried out by Ielu Kuresa, Samoan Medical Practitioner, which was most painstaking and which forms the basis of our reports on this epidemic of poliomyelitis. Throughout the two years of the campaign we had every possible help given us by His Excellency, General H. E. Hart, C.B., C.M.G., D.S.O., V.D., Administrator of Western Samoa, and the subordinate personnel of his Administration.

RETURN OF DISEASES AND DEATHS AT THE COLONIAL WAR MEMORIAL HOSPITAL FOR THE YEAR 1934

Disease.	Admissions.					Deaths.
	Europeans.	Fijians.	Indians.	Others.	Total.	
ACUTE INFECTIOUS DISEASES.						
Typhoid	..	2	6	..	8	2
Malaria	..	1	..	..	1	..
Pertussis	..	2	2	3	7	..
Diphtheria	2	..	3	..	5	..
Influenza	24	61	54	30	169	..
Dysentery-Bacillary	3	8	14	2	27	5
Dysentery-Amœbic	3	..	1	..	4	..
Erysipelas	..	..	1	..	1	..
Acute Ant Poliomyelitis	..	..	2	..	2	..
Chicken Pox	1	2	1	1	5	..
Tetanus	..	..	1	..	1	..
Septicæmia	..	..	2	..	2	1
Dengue	..	..	1	..	1	..
Diarrhœa	3	3	6	3	15	..
Total	36	79	94	39	248	8
TUBERCULAR AND VENERAL DISEASES.						
T.B. Meningitis	..	1	1	2	4	2
T.B. of Lungs	2	17	22	7	48	24
Pott's & T.B. Arthritis	1	3	1	..	5	..
Genito-Urinary T.B.	..	..	1	..	1	1
Lymphatic T.B. and T.B. of other Organs	1	3	2	1	7	1
Secondary Syphilis	1	..	..	..	1	..
Tertiary Syphilis	..	..	1	..	1	1
Acute Gonorrhœal Infections	2	3	7	3	15	..
Chronic Do.	..	1	5	..	6	..
Leprosy	..	5	10	6	21	..
Yaws	..	6	..	1	7	1
Ex Lepers from Makogai	..	2	..	..	2	..
Total	7	41	50	20	118	30
MALIGNANT DISEASES.						
Carcinoma Stomach	..	..	3	..	3	..
Do. Intestines	..	..	2	..	2	1
Do. Rectum	1	..	..	1	2	1
Do. Uterus	..	2	2	..	4	2
Do. Kidneys	..	..	1	..	1	..
Do. Vulva and Vagina	..	..	1	..	1	1
Do. Bladder	..	1	..	..	1	1
Epithelioma	..	..	..	1	1	..
Secondary Carcinoma	1	1	..	..	2	1
Rodent Ulcer	2	..	..	..	2	..
Carcinoma of Other Organs	..	..	3	..	3	2
Sarcoma of Bones	..	1	..	..	1	..
Sarcoma of Limbs	..	1	..	..	1	..
Total	4	6	12	2	24	9
BENIGN TUMOURS-HYDATIDS DISEASES.						
Lipomata	..	1	..	..	1	..
Fibromata except Uterine	1	2	..	..	3	..
Other Innocent Tumours	1	1	2	1	5	..
Total	2	4	2	1	9	..
BLOOD DISEASES AND INTOXICATIONS.						
Acute Rheumatic Fever	1	1	7	..	9	..
Anæmia Pernicious	..	..	5	..	5	..
Do. Secondary	..	..	4	1	5	2
Hæmophilia	..	..	3	..	3	1
Alcoholism Acute or Chronic	2	..	..	..	2	..
Chronic Rheumatism	..	1	3	..	4	..
Total	3	2	22	1	28	3
ENDOCRINE ORGANS DISEASES.						
Exopthalmic Goitre	1	..	..	..	1	..
Simple Goitre	..	..	1	..	1	..
Other Diseases Thyroid Gland	..	..	1	..	1	..
Diabetes Mellitis	2	..	11	..	13	..
Total	3	..	13	..	16	..

Disease.	Admissions.					Deaths.
	Europeans.	Fijians.	Indians.	Others.	Total.	
NERVOUS DISEASES.						
Sciatica	..	..	1	..	1	..
Myelitis	..	1	..	..	1	1
Locomotor Ataxia	1	..	1	..	2	..
Acute Encephatitis Cerebral	1	..	..	..	1	..
Intra-Cranial Tumours	2	..	..	..	2	..
Cerebral Hæmorrhage Thrombosis and Embolism	..	..	3	..	3	..
Epilepsy	2	3	1	..	6	..
Hysteria and Neurasthenia	1	..	3	..	4	..
Insanity and Idiocy	..	1	1	1	3	..
Neuralgia	1	..	2	..	3	..
Hemiplegia	1	1	5	..	7	1
Other Diseases of the Nervous System	1	1	..	1	3	..
Debility	2	1	7	..	10	..
Paraplegia	..	..	3	..	3	..
Total	12	8	27	2	49	2
CIRCULATORY SYSTEM.						
Pericarditis	2	..	1	..	3	..
Affections of Myocardium	..	2	22	1	25	17
Acute Endocarditis	..	..	3	..	3	2
Chronic V.D.H.	..	1	4	..	5	1
Angina Pectoris	1	..	..	..	1	..
Arterio Sclerosis	4	..	..	..	4	4
Simple Lymph Adenitis	..	..	1	1	2	..
Filariasis	3	4	..	2	9	..
Septicæmia (not Puerperal)	1	1	..	1	3	1
Total	10	8	31	5	55	25
DISEASES OF RESPIRATORY SYSTEM.						
Bronchitis Acute	1	2	5	1	9	1
Do. Chronic	4	1	4	1	10	2
Bronchiectasis	1	..	1	..	2	..
Pneumonia Lobar	1	16	10	5	32	10
Do Bronchial	..	5	8	4	17	8
Pleurisy	..	1	1	1	3	..
Pleurisy Chronic	..	..	..	2	2	..
Asthma	1	1	8	..	10	1
Emphysem	1	..	..	..	1	..
Other Diseases Respiratory Sys.	..	1	..	..	1	..
Total	9	27	37	14	87	22
DISEASES OF ALIMENTARY SYSTEM.						
Stomatitis & Diseases of Tongue	..	..	1	1	2	1
Diseases connected with Teeth	9	6	11	9	35	..
Diseases of Salivary Glands	..	..	1	..	1	..
Acute Gastric Ulcer	1	..	1	1	3	..
Chronic Gastric Ulcer	1	1	2	2	6	..
Gastritis Acute	..	1	2	1	4	..
Duodenal Ulcer	1	3	3	4	11	..
Perforated Gastric Ulcer	..	..	1	1	2	..
Enteritis	4	1	2	..	7	2
Intestinal Colic	..	..	2	..	2	..
Do. Parasites	1	8	19	2	30	..
Do. Obstruction	5	2	4	..	11	4
Intussusception	..	..	..	1	1	..
T.B. in Intestines	..	1	..	..	1	..
Visceroptosis	1	..	..	..	1	..
Constipation	1	2	6	..	9	..
Ischio Rectal Abscess	1	..	2	..	3	..
Anal Fissure and Fistula	1		..	..	1	..
Prolapse of Rectum & Hæmorrhoids	4	..	5	1	10	..
Chirrosis of Liver	2	..	3	..	5	3
Gall Stones	..	..	4	..	4	..
Biliary Colic	..	..	1	..	1	..
Cholecystitis	3	1	6	4	14	1
Catarrhal Jaundice	1	1	..	..	2	..
Other Intestinal Diseases	..	..	..	1	1	..
Amœbic Hepatitis & Abscess	..	1	..	..	1	..
Other forms of Hepatitis	1	..	1	..	2	..
Total	37	28	77	28	170	11

RETURN OF DISEASES AND DEATHS AT THE COLONIAL WAR MEMORIAL HOSPITAL FOR THE YEAR 1934.—*continued.*

Disease.	Admissions.					Deaths.
	Europeans.	Fijians.	Indians.	Others.	Total.	
Diseases of Appendix and Peritonitis.						
Appendicitis Acute and Simple	7	2	8	3	20	..
Do. Chronic	31	3	13	3	50	1
Do. Subacute	3	..	..	..	3	..
Appendicitis with general Peritonitis	1	..	2	..	3	..
Peritonitis Adhesions	2	..	..	..	2	..
Total	44	5	23	6	78	1
Hernia.						
Inguinal Hernia	4	3	8	1	16	..
Strangulated Hernia	..	2	1	..	3	1
Other Hernias	..	..	1	..	1	..
Total	4	5	10	1	20	1
Diseases of Urinary Stsyem.						
Acute Nephritis	..	1	1	..	2	..
Chronic Nephritis	..	3	2	..	5	2
Nephroptosis	..	..	..	1	1	
Hydro and Pyo Nephrosis	1	..	..	..	1	..
Pyelitis	..	1	6	..	7	..
Renal Colic	1	..	1	..	2	..
Cystitis Acute	..	..	1	..	1	..
Do. Chronic	..	..	..	1	1	..
Diseases of Prostrate Gland	..	..	2	..	2	1
Ureteral Structure	1	..	3	..	4	..
Urinary Fistula	..	..	1	..	1	..
Uræmia	..	..	1	..	1	1
Other Urinary Diseases	1	..	4	..	5	..
Total	4	5	22	2	33	4
Diseases of Male Organs.						
Phimosis	..	5	2	1	8	..
Para-Phimosis	..	..	1	..	1	..
Hydrocele Hæmatocele	3	9	2	2	16	..
Orchitis and Epididymitis	1	1	5	..	7	..
Variococele	1	..	..	..	1	..
Elephantiasis of Scrotum	..	5	1	..	6	..
Total	5	20	11	3	39	..
Diseases of Women.						
Menstrual Disorders	3	1	3	1	8	..
Uterine Tumours Benign	1	2	1	..	4	1
Displacement of Uterus	2	1	4	2	9	..
Prolapse of Uterus	5	..	1	..	6	..
Cystocele and Rectocele	1	..	1	..	2	..
Endometritis	3	..	2	1	6	..
Ovarian Tumours or Cysts	2	..	2	..	4	..
Salpingitis	2	2	9	4	17	..
Pelvic Peritonitis	..	1	1	..	2	1
Abscess of Vulva or Vaginitis	..	..	1	1	2	..
Pruitis of Vulva	1	..	..	..	1	..
Pregnancy	1	5	23	4	33	..
Normal Labour	2	82	66	50	200	..
Abortion	2	4	7	5	18	..
Extra Uterine Gestation	..	..	1	..	1	1
Toxæmias of Pregnancy	2	1	2	1	6	4
Nephritis of Pregnancy	..	..	1	..	1	..
Laceration of Perineum	1	..	..	..	1	..
Puerperal Sepsis	1	..	2	..	3	3
Do. Thrombosis	..	..	1	..	1	..
Placenta Prævia	1	..	..	..	1	..
Retention of Foetal Products	5	..	1	..	6	..
Obstructed Labour	..	..	1	..	1	..
Total	35	99	130	69	333	10
Diseases of Breast.						
Abscess of Breast	..	1	4	..	5	..

Disease.	Admissions.					Deaths.
	Europeans.	Fijians.	Indians.	Others.	Total.	
Diseases of Skin.						
Furunculosis	1	..	..	1	2	..
Carbuncle	2	1	1	..	4	1
Abscess	6	27	28	9	70	..
Cellutitis	3	..	4	3	10	..
Other Skin Diseases	7	5	11	1	24	..
Ulcers	4	4	3	3	14	..
Gangrene	2	..	3	..	5	1
Scabies	..	4	3	..	7	..
Dermatitis	2	3	3	..	8	..
Total	27	44	56	17	144	2
Diseases of Bones and Joints and Muscles, &c.						
Osteomyelitis Acute	..	1	..	..	1	..
Osteomyelitis Chronic	..	4	2	..	6	..
Periostitis	..	2	..	1	3	..
Arthritis Acute	..	1	..	1	2	..
Arthritis Chronic	2	3	3	4	12	..
Myalgia and Myositis	..	..	1	..	1	1
Bursitis	2	1	..	1	4	..
Teno-Synovitis	..	..	1	..	1	..
Ganglion	..	2	..	..	2	..
Bunions, Hallux Valgus	3	..	..	1	4	..
Total	7	14	7	8	36	1
Malformations.						
Cleft Palate	..	..	1	..	1	..
Other Congenital Malformations	..	..	1	..	1	..
Total	..	..	2	..	2	..
Diseases of the Eye.						
Conjunctivitis	..	1	2	1	4	..
Trachoma	..	3	3	1	7	..
Pterygium	..	5	..	1	6	..
Keratitis	..	..	3	..	3	..
Corneal Ulcer and Sequelæ	..	2	2	..	4	..
Cataract	..	7	8	2	17	..
Diseases of Lids	..	10	..	..	10	..
Iritis	..	1	3	1	5	..
F.B.I.E.	1	..	1	..	2	..
Injury to Eye	..	3	5	2	10	..
Other Diseases of Eye	1	..	5	..	6	..
Total	2	32	32	8	74	..
Diseases of Ear, Nose and Throat.						
T.B. in ear	..	..	1	1	2	..
Acute Otitis Media	1	..	6	3	10	..
Chronic Otisis Media	2	1	2	..	5	..
Mastoiditis	..	..	4	..	4	..
Maxillary Sinusitis	4	..	1	..	5	..
Nasal Pharyngeal Polypi	..	1	..	..	1	..
Enlarged Tonsils and Adenoids	20	1	3	5	29	..
Phargngitis	2	..	1	..	3	..
Laryngitis	1	..	..	..	1	..
Tonsilitis Follicular	12	1	5	2	20	..
Quinsy	1	..	..	..	1	..
Total	43	4	23	11	81	..
Diseases of Earle Infancy and Old Age.						
Admitted with mother not ill	1	1	8	2	12	..
Other Diseases of Early Infancy	..	1	..	..	1	..
General Senility	..	1	..	..	1	1
Septic Umbilicus	..	1	..	..	1	1
Prematurity	..	1	1	2	4	4
Total	1	5	9	4	19	6

RETURN OF DISEASES AND DEATHS AT THE COLONIAL WAR MEMORIAL HOSPITAL FOR THE YEAR 1934.—*continued.*

Disease.	Admissions.					Deaths.
	Europeans.	Fijians.	Indians.	Others.	Total.	
AFFECTIONS DUE TO EXTERNAL CAUSES.						
Food Poisoning	1	2	..	1	4	..
Other Poisoning	..	5	3	4	12	..
Burns and Scalds.	4	7	10	5	26	4
Injuries to Abdomen	..	1	2	1	4	..
Do. Extermities . ..	8	27	29	11	75	..
Do. Head and Neck ..	2	16	15	4	37	..
Cerebral Concussions	1	..	2	1	4	..
Injuries to Spine and Back ..	1	..	2	1	4	..
Sprains and Contusions . ..	1	1	3	..	5	..
Fracture of—						
Jaw and Facial Bones ..	..	1	1	..	2	..
Clavicle	..	1	..	..	1	..
Humerus	..	..	3	1	4	..
Radius	1	1	2	1	5	..
Ulna	..	..	1	..	1	..
Radius and Ulna	1	2	..	1	4	..
Bones of Hand	1	..	..	..	1	..
Skull	..	..	3	..	37	2
Spinal Column	2	..	1	..	3	1
Pelvis	..	..	1	..	1	..
Femur	..	1	3	..	4	..
Tibia	1	5	1	..	7	..
Fibula	..	1	1	..	2	
AFFECTION DUE TO EXTERNAL CAUSES—*continued.*						
Tibia and Fibula point ..	4	1	1	..	6	..
Bones in Foot	3	..	1	..	4	..
Separated Epiphysis	1	..	..	..	1	..
Foreign Body in Soft Parts ..	..	..	2	2	4	..
Shock after Injury	..	..	1	1	2	..
Infected Wounds	..	1	..	..	1	..
Infections of the Hand	2	..	..	..	2	..
Insect Bites	..	1	..	..	1	..
Septic Wounds of Extremities .	9	28	21	11	69	..
Wounds of Foot..	2	20	13	6	41	..
Wounds of Hand	5	8	5	3	21	..
Total	49	131	125	53	358	7
ILL-DEFINED DISEASES.						
Admitted for Investigation ..	21	28	67	14	130	..
Born in Hospital	2	68	62	51	183	3
Dependents	1	19	24	3	47	..
Orphans	..	12	..	..	12	..
Total	3	99	86	54	242	3

LIST OF OPERATIONS ON IN-PATIENTS AT LAUTOKA HOSPITAL DURING THE YEAR 1934.

	Euro.	Fiji.	Ind.	Total
Amputations	.	1	11	12
Arthrotomy of Elbow	.	1	1	2
Excision of Elbow Joint	.	1	.	1
Sub-trochanteric obteotomy ..	.	.	2	2
Resection of—				
Head of Radius..	.	1	1	2
Various bones	.	4	6	10
Rib and drainage.	.	.	1	1
Lengthening of tendo achillis. ..	.	.	5	5
Radical cure of—				
Maxillary antritis	.	1	.	1
Frontal empyema	2	2	5	9
Schwartz mastoid	.	2	.	2
Radical mastoid	.	.	3	3
Cerabral decompression	1	.	1	2
Trephining of skull	.	.	1	1
Tonsillectomy and Adenoidectomy .	5	.	5	10
Cure of hare lip	.	.	1	1
Resection of tongue	.	.	1	1
Wiring of mandible, &c.	1	.	.	1
Thyroidectomy	.	1	2	3
Skin graft	.	4	3	7
Block dissection of glands	2	5	6	13
Enuclestion of eyeball	2	2	1	5
Evisceration of orbit	–	.	1	1
Lid splitting and grafting	1	1	3	5
Extraction of cataract	.	.	2	2
Radical cure of—				
Inguinal hernia	5	6	32	43
Ventral hernia	.	.	1	1
Excision of wound and suture of intestine	.	.	1	1
Talma Morison	.	.	1	1
Suture of perforated gastric ulcer ..	.	1	.	1
Appendicectomy	2	.	8	10
Drainage of appendix abscess ..	.	.	1	1
Gastro-Enterostomy..	.	.	6	6
Duodeno-jejunostomy	.	.	1	1
Drainage of subphrenic abscess ..	.	.	1	1
Various Laparotomies	1	1	11	13
Cholecystectomy	.	.	3	3
Closure of fœcal fistula	.	.	1	1
Colostomy	.	.	1	1
Excision of fistula in ano	.	.	1	1
Ligature and exicision of hæmorrhoids	6	5	44	55
Dilatation of rectum..	.	.	1	1
Perinæal exicision of rectum . ..	.	.	1	1
Plastic of rectum	.	.	1	1
Radical cure of rectal prolapse ..	.	.	1	1
Drainage of Perinaphric abscess ..	.	1	.	1
Laparotomy and ablation of Uthopredion	.	.	1	1
Ovariotomy	.	2	6	8
Wertheinis extended hysterectomy .	.	.	1	1
Hysterectomy	1	.	3	4
Hysterectomy and Salphingectomy .	.	1	1	2
Salpingo oophosectomy	.	.	1	1
Salpingectomy.	.	.	5	5
Salpingectomy extraction of cyst and plication of broad ligament ..	1	.	.	1
Ventrisuspension and separation of adhesions	1	.	1	2
Perinæorrhaphy	.	.	1	1
Radical cure of cystocele and perinæorrhaphy	1	.	.	1
Colpotomy	1	.	6	7
Excision of Batholius cyst	.	.	1	1
Forceps delivery &c.	.	3	3	6
Induction of abortion	.	.	3	3
Radical amputation of breast ..	.	.	1	1
Dilatation of curettage of Uterus &c.	4	5	43	52
Perinæal Urethrotomy and suture ..	1	.	.	1
Urethral dilatation	3	.	22	25
Suprapibic Prostatectomy	1	.	.	1
Epidiymotomy	.	.	1	1
Orchido-vasectomy and excision of glands	.	.	1	1
Radical cure of hydrocele	.	3	21	24
Circumcision and block dissection of glands	.	.	1	1
Amputation of scrotum	.	2	1	3
Kondoleon, &c.	.	2	.	2
Excisions, sutures, manipulations, &c.	67	182	578	827

SURGICAL OPERATIONS PERFORMED AT THE COLONIAL WAR MEMORIAL HOSPITAL DURING THE YEAR 1934.

	No.
Blood Vessels—	
Ligature of arteries	1
Blood transfusion	7
Venesection	4
Collection of blood for Kahn Test	169
Muscles, Bursæ, Tendons and Nerves—	
Psoas abscess aspiration and closed drainage	4
Suturings of tendons	4
Alcoholic injection of supra-orbital nerve	2
Alcoholic injection of semi-lunar (Gasserian) ganglion	2
Bones—	
(*a*) Skull—Trephining of skull	2
(*b*) Spine—Lumbar puncture	13
(*c*) Fractures—Reduction and setting of fractures under G.A.	15
Pegging of fracture of radius	1
Insertion of Kirschner's wire	3
Application of plasters	17
(*d*) Amputation and Excisions—	
Amputation of—toes	7
fingers	3
foot	2
leg	2
Sequestrectomy	7
Joints—	
Aspiration of knee-joint	7
Royle's modification of Mayo's operation for hallux rigidus	1
Glandular System—	
Excision of glands of neck	4
Opening of gland abscesses	26
Excision of axiliary glands	1
Alimentary System—	
Mouth, Tongue, Lips—	
teeth extraction cases	150
ligature of papilloma of tongue	1
Suturing of hare-lip	3
Stomach and Intestines—	
Stomach washout	8
resection of intestine	1
Appendicectomy	77
Gastro-enterostomy	9
Intussusception	1
Ileostomy	1
Cæcostomy	1
Relief of intestinal obstruction by adhesions	1
Freeing of Jackson's membrane	1
Cœliotomy	8
Paracentesis abdominis	49
Hernia—	
Inguinal, radical cure	17
Inguinal, strangulated	4
Liver, Gall-Bladder, Spleen, Pancreas—	
Liver abscess	1
Cholecystectomy	2
Cholecystostomy	1
Removal of packing from liver	1
Packing of laceration of liver	1
Slpenectomy	1
Rectum and Anus—	
Lockhart Mummery's operation for prolapse of rectum	1
Narrowing of external sphincter	1
Rectal abscess	3
Fistula-in-ano	3
Excision of hæmorrhoids	7
Carbolic injection of hæmorrhoids	2
Proctoscopy	4
Signoidoscopy	5
Packing of rectum	2
Ischio-rectal abscess	3
Removal of impacted fæces	1
Urinary System—	
Nephrectomy	1
Nephropexy	1
Implantation of ureters into colon	4
Exploration of kidney	1
Ureterolithotomy	1
Cystoscopy	6
Dilatation of urethra	7
Supra-pubic cystotomy	6
Male Genital Organs—	
Circumcision	38
Radical-cure of hydrocele	14
Orchidectomy	5
Hydrocele of the cord	1
Variocele	1
Tapping of hydrocele	5
Incision of scrotum	4
Gynæcological—	
Vulva—Perineorrhaphy	2
Vaginal—	
Repair of recto-vaginal fistula	1
Anterior colporrhaphy	3
Posterior colporrhaphy	2
Cure of cystocele	5
Incision of vagina	1
Packing of vagina	1
Insertion of pessary	1
Pelvic examination	40
Posterior colpotomy	3

	No.
Uterus—	
Cæsarean section	2
Amputation of cervix	2
Hysterectomy subtotal	4
Hysterectomy total	1
Trachelorrhaphy	1
Currettage	24
Ventro-suspension	7
Induction of labour	5
Removal of cervical polypus	1
Removal of retained placenta	2
Myomectomy	1
Ovary and Tubes—	
Ovariotomy	1
Sterilisation	1
Breast—	
Excision of cyst	1
Incision of abscess	9
Thorax—	
Thoracotomy—Drainage	2
Paracentisis thoracis	12
Eye—	
Entropion	13
Needling of lens	10
Cataract extractions	11
Iridotomy	2
Iridectomy	5
Visualiridectomy	1
Paracentesis	5
Trephining	1
Pterygium	10
Excisions	2
Incisions of globe	1
Suturing of lids	1
Scraping or rolling of eyelids	1
Cauterisation	2
Ear, Nose, Throat—	
Tonsillectomy (Guillotine)	28
Dissection of tonsils	1
Adenoidectomy	11
Removal of nasal polypi	3
Removal of aural poypi	2
Mastoidectomy	4
Pernasal operation on maxillary antrum	2
Brain—	
Ventriculography	1
Skin Grafts—	
Pedicle graft	7
Thiersch	4
Skin—	
Excision of rodent ulcer	4
Excision of epithelioma	2
Removal of toe-nail	4
Septic Areas—Incised	173
Injections—	
Arsenical preparations	1252
Bismuth preparations	47
Mercurochrome	8
Flavine	4
Intravenous pyelography	12
Intravenous cholecystography	1
Calot's fluid	1
Autogenous blood	3
Gum-saline	3
Quinine and urethane	2
Anti-tetanic serum	202
New Growths—	
Excision of fibroma	3
cyst	2
lipoma	2
papilloma	2
General—	
Excision of ulcers	4
Excision of scar tissue	2
Repair of wounds	109
Retro-peritoneal abscess	1
Foreign Bodies—	
Extracted from foot	7
hand	3
wrist	1
knee	1
arm	1
eye	1
chest wall	2
ear	4
nose	2
Grand total	2,898

Grand total . 2,898

Anæsthetics—	
General	659
Local	238
Spinal	38
Gas-oxygen	4
Evipan	1
Rectal	1
Total	941

TABLE SHOWING NUMBER AND CAUSES OF ADMISSION AND DEATHS AT LAUTOKA HOSPITAL, LEVUKA HOSPITAL, PROVINCIAL HOSPITALS, PLANTATION HOSPITALS, AND SUVA GAOL INFIRMARY.

Disease.	Lautoka.		Levuka.		Rewa.		Ba.		Nadroga.		Ta'uni.		Savusavu.		Ra.		Colo East.		Macuata.		Bua.		Kadavu.		Rotuma.		Lomaloma.		Suva Gaol.		Nausori Plant.		Ra'wai Plant.		Nadi.		Penang.		Total.	
	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.
General Diseases.																																								
Mumps	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Chicken-pox	2	..	1	..	..	..	..	..	..	..	1	..	..	..	5	..	..	..	1	..	..	..	..	..	2	..	2	..	..	..	..	..	1	..	1	..	1	..	17	..
Diphtheria	5	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	7	..
Pertussis	9	..	..	..	..	..	..	..	..6	..	..	..	4	..	..	..	35	..	7	4	5	..	1	..	70	11	..	..	..	..	..	..	14	..	..	..	..	..	151	15
Influenza	46	2	16	..	17	..	18	..	26	..	55	..	15	..	9	..	48	..	29	2	28	..	38	..	8	..	7	..	38	..	..	..	101	1	16	..	46	..	561	5
Measles	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Enteric Fever	9	1	14	..	..	..	1	..	11	..	..	..	..	..	..	..	..	..	5	2	..	..	..	..	..	..	..	..	..	..	..	..	2	..	8	..	7	2	57	5
Dysentery	114	5	1	..	3	..	4	1	16	3	2	..	2	..	8	2	10	..	12	..	1	..	..	..	..	..	5	1	12	1	..	..	66	..	67	1	17	3	340	17
Pneumonia	39	16	11	2	..	..	10	4	..	..	4	..	6	2	5	..	12	1	9	3	12	3	2	1	6	2	5	1	..	..	..	..	10	6	15	6	5	2	151	49
Gonorrohœa	26	1	1	..	1	..	..	..	2	..	6	..	4	..	..	..	..	..	2	..	..	..	..	..	..	..	..	..	2	..	..	..	2	..	5	..	2	..	53	1
Septicæmia	2	1	2	2	1	1	1	..	..	..	..	..	..	..	..	..	..	..	1	1	..	..	..	..	..	..	..	..	..	..	..	..	2	2	1	1	1	1	11	9
Tetanus	2	1	..	..	..	..	..	..	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	1	1	..	..	5	3
Tuberculosis	96	11	14	..	18	4	5	..	5	..	7	..	4	..	12	..	6	1	7	2	4	1	4	1	..	..	3	1	2	..	..	..	3	1	25	2	2	..	217	24
Yaws	2	..	..	..	13	..	15	..	7	..	9	..	5	..	3	..	11	..	5	..	23	..	30	..	87	..	..	..	1	..	..	..	..	..	1	..	3	..	215	..
Syphilis	5	..	..	..	..	..	..	..	..	..	..	..	2	..	..	..	..	..	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	3	..	..	..	12	..
Leprosy	16	..	8	..	4	..	..	..	2	..	..	..	1	..	1	..	..	..	9	..	..	..	1	..	..	..	..	..	1	..	..	..	..	..	..	..	1	..	44	..
Anæmia	76	2	5	..	..	..	..	..	..	..	..	..	..	..	2	..	1	..	1	..	2	..	2	..	2	..	..	..	..	..	..	..	5	1	5	..	4	..	105	3
Pyæmia	1	..	1	..	..	..	..	..	..	..	1	1	..	..	..	..	..	..	..	..	..	..	1	1	16	..	..	..	..	..	..	..	..	..	..	..	..	..	20	2
Rheumatism	11	..	3	..	..	..	2	..	6	..	5	..	5	..	2	..	5	..	9	..	..	..	1	..	2	..	1	1	1	..	..	..	25	..	5	..	6	..	89	1
New Growths	37	3	2	..	..	..	2	..	..	..	..	..	..	..	6	..	1	..	7	1	..	..	..	..	..	..	..	..	..	..	..	..	1	1	..	..	..	..	56	5
Erysipelas	3	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	4	1
Diabetes	29	3	..	..	..	..	..	..	1	..	..	..	..	..	1	..	..	..	5	1	..	..	..	..	..	..	..	..	..	..	..	..	3	..	..	..	..	..	39	4
Malaria	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Dengue	..	..	..	..	..	..	..	..	..	..	..	..	..	..	3	..	2	..	1	..	..	..	..	..	2	..	..	..	..	..	..	..	..	..	..	..	4	..	12	..
Debility	3	..	6	..	8	3	2	..	2	..	7	..	3	..	1	..	1	..	8	..	..	..	..	..	..	..	1	..	2	..	..	..	5	4	3	..	..	..	52	7
Local Diseases.																																								
Diseases of—																																								
Nervous System	38	4	7	1	2	..	3	1	11	1	..	..	2	1	4	..	7	..	9	..	5	..	11	1	4	1	..	..	..	..	..	..	9	4	5	2	1	..	118	16
Eye	36	..	5	..	4	..	2	..	7	..	17	..	8	..	7	..	2	..	11	..	4	..	1	..	1	..	..	..	..	..	..	..	11	..	3	..	2	..	121	..
Ear	10	..	..	..	2	..	..	..	..	..	3	..	1	..	1	..	..	..	4	..	3	..	..	..	2	..	..	..	..	..	..	..	2	..	1	..	..	..	29	..
Nose	..	..	1	..	..	..	..	..	1	..	..	..	1	..	..	..	..	..	1	..	1	..	..	..	2	..	..	..	..	..	..	..	..	..	..	..	..	..	7	..
Circulatory System	106	8	4	1	11	2	1	..	5	1	4	..	11	..	2	..	2	..	22	5	..		1	..	1	1	..	..	1	..	..	..	3	2	7	1	3	1	184	22
Respiratory System	93	4	17	..	24	2	13	1	7	2	5	..	7	1	9	2	12	..	25	1	11	..	5	..	20	5	..	..	4	..	..	..	14	2	28	2	5	..	299	22
Digestive System	232	8	16	1	32	4	8	1	14	1	14	1	8	..	18	..	11	..	34	1	3	1	5	..	28	..	..	..	7	..	..	..	29	2	9	2	14	1	482	23
Lymphatic System	17	1	9	..	25	..	5	..	1	..	7	..	..	..	3	..	..	..	20	..	..	..	7	..	8	2	..	..	7	..	..	..	6	1	5	..	8	..	128	4
Urinary System	29	4	5	..	3	2	3	..	3	..	2	1	1	..	1	..	1	..	14	3	3	..	..	..	..	..	..	..	1	..	..	..	14	2	2	..	8	..	90	12
Male Organs	32	..	10	..	7	..	1	..	1	..	12	1	2	..	..	..	..	..	10	..	..	..	..	..	..	..	..	..	..	..	..	..	9	..	..	..	3	..	87	1
Female Organs	96	2	1	..	4	1	5	1	1	..	4	1	1	..	1	..	1	..	14	1	6	..	5	..	10	..	..	..	..	..	..	..	2	..	2	..	7	..	160	6
Organs, Locomotion	48	..	6	..	2	..	..	..	20	..	2	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	2	..	..	81	2
Cellular Tissues	105	3	12	3	20	..	22	..	7	1	..	..	3	..	5	..	1	..	3	..	..	..	1	..	2	1	..	..	13	..	..	..	44	..	23	..	4	..	265	8
Skin	62	1	19	..	27	..	10	..	3	..	7	..	47	..	15	..	2	..	2	..	11	..	5	..	24	..	..	..	1	..	..	..	10	..	6	..	2	..	253	1

Injuries General ...	89	4	1	..	17	1	1	..	..	..	..	..	14	2	6	1	10	1	4	..	8	..	4	..	2	1	..	..	..	..	..	..	8	2	11	..	9	..	184	12
Injuries Local	4	1	28	..	24	..	14	..	21	..	65	..	4	..	15	..	36	..	41	..	24	..	24	..	1	..	..	..	14	..	..	..	28	..	18	..	32	..	393	1
Poisons	7	..	3	..	2	..	..	..	..	..	..	..	..	..	5	3	..	..	1	..	3	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	4	..	26	3
Parasites	21	..	2	..	..	..	..	..	1	1	..	..	..	..	5	..	..	..	5	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	35	1
Parturition	102	..	5	..	12	..	..	..	21	..	14	..	..	..	9	..	39	1	6	1	5	..	1	..	..	..	..	..	..	..	..	..	..	..	3	..	..	..	217	2
Premature Birth ...	..	..	1	..	1	1	..	..	5	..	..	..	..	..	..	..	..	..	4	..	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	..	14	2
Unclassified	201	1	32	..	48	..	..	..	20	..	174	..	1	..	..	..	35	1	172	1	14	2	14	..	..	..	..	..	18	..	..	..	3	..	10	..	9	..	751	5
Lunacy	1	..	..	..	6	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	1	..	10	..
Grand Total	1862	88	269	10	338	21	148	9	234	11	427	5	163	6	164	8	292	5	522	29	178	8	164	4	300	24	25	4	127	1	..	..	435	31	291	20	213	10	6152	294
Out-Patients	11,177		3,426		2,512		1,959		2,575		2,280		2,302		2,380		4,399		8,944		2,018		2,877		1,058		1,912		192		3,806		7,579		9,072		2,913		73,381	

MONTHLY MEANS FOR THE YEAR 1934, SUVA STATION, TAKEN AT 8.30 A.M. AND 3.30 P.M.

Months.	Mean Pressure in Inches. (Reduced to 32° Faht., 45° Lat. & M.S.L.		Air Temperature (F°)												Mean Dew Point.		Mean Vapour Pressure in Millibars.		Mean Relative Humidity (Saturation =100)		Mean Amount of Cloud. (0—10)	
			Mean Dry Bulb.		Mean Wet Bulb.		Means of			Absolute Max. & Min.												
							Max	Min.	Mean.	Max.	Date.	Min.	Date.									
	8.30	3.30	8.30	3.30	8.30	3.30								8.30	3.30	8.30	3.30	8.30	3.30	8.30	3.30	
January ..	29·821	29·757	82·1	84·4	76·8	77·7	88·4	75·9	82·1	95	20	72	28	74·3	74·9	29·1	29·6	77·8	73·8	6·0	7·3	
February .	29·845	29·777	79·7	83·2	75·9	77·1	86·5	74·1	80·3	94	16	72	2, 5, 6, 7, 19	74·3	74·4	28·9	28·9	83·6	75·7	6·8	7·3	
March	29·802	29·734	80·2	82·9	76·3	77·4	86·5	74·7	80·6	91	2, 8, 12	70	25	74·5	74·9	29·3	29·6	83·4	78·0	7·2	7·7	
April	29·922	29·850	80·0	80·8	75·0	75·4	84·5	73·8	79·2	89	2	71	20	72·6	72·9	27·4	27·7	78·9	78·0	6·3	7·5	
May	29·940	29·867	75·6	77·2	72·5	73·3	80·0	72·0	76·0	88	10	69	15	71·1	71·2	26·0	26·3	85·7	82·6	8·4	8·5	
June	29·979	29·906	75·0	77·6	71·8	72·5	79·9	70·7	75·3	88	11	64	16	70·2	69·8	25·3	25·0	85·1	77·3	7·7	7·8	
July	29·975	29·901	73·1	75·7	69·8	71·0	78·1	69·1	73·6	82	10,11,21,22	63	19, 20	68·1	67·9	23·7	23·6	84·6	77·7	7·2	7·3	
August ...	30·028	29·948	75·1	77·2	70·5	71·0	79·6	70·0	74·8	86	25, 26	64	3	68·0	67·5	23·4	23·2	79·0	72·8	7·3	7·3	
September	29·990	29·915	74·1	76·9	69·5	70·6	79·6	68·9	74·3	88	25	63	2	66·7	66·9	22·8	22·8	78·8	72·3	8·0	7·2	
October ..	29·993	29·918	77·2	78·8	72·0	72·5	82·0	70·3	76·1	88	19	66	13, 15	69·2	69·1	24·5	24·5	76·9	73·2	6·3	6·8	
November	29·913	29·845	79·2	81·4	74·5	75·3	84·2	72·8	78·5	90	18, 19	67	10	72·2	72·6	27·1	27·4	79·4	75·0	6·7	7·5	
December	29·806	29·746	80·3	83·4	74·8	76·3	86·0	73·8	79·9	91	19	70	13	72·3	72·9	27·2	27·7	76·9	71·5	5·7	5·6	
Year	29·918	29·847	77·6	80·0	73·3	74·2	82·9	72·2	77·6	..	..	..	..	71·1	71·3	26·2	26·4	80·8	75·6	7·0	7·3	

Months.	Mean Bright Sunshine (hours and tenths.)	Weather. No. of days of							Wind. Number of Observations of																	
		Hail.	Thndr Strms	Gales	Clear Sky		Overcast		N.		N.E.		E.		S.E.		S.		S.W.		W.		N.W.		Calms.	
					8·30	3·30	8·30	3·30	8·30	3·30	8·30	3·30	8·30	3·30	8·30	3·30	8·30	3·30	8·30	3·30	8·30	3·30	8·30	3·30	8·30	3·30
January	7·1	0	6	0	2	0	8	9	7	2	7	7	5	7	2	8	0	2	0	3	0	1	0	1	10	0
February	5·9	0	7	0	1	0	11	12	3	3	5	4	1	5	0	6	2	6	1	2	4	1	2	0	10	1
March	5·0	0	5	0	3	1	12	15	4	4	4	4	9	8	1	8	0	2	0	3	1	1	2	1	10	0
April	5·2	0	2	1	0	0	5	13	3	2	8	7	12	16	2	4	0	0	0	1	0	0	1	0	4	0
May	2·3	0	0	0	1	1	23	23	3	2	5	5	7	9	7	11	0	2	0	2	2	0	1	0	6	0
June	3·3	0	0	0	0	0	14	18	7	0	6	7	7	13	3	6	1	1	1	3	1	0	1	0	3	0
July	3·9	0	1	0	1	1	14	14	8	0	6	5	4	10	4	8	1	4	1	3	2	0	0	1	5	0
August	4·7	0	0	0	1	0	16	14	0	0	12	7	12	15	6	7	1	1	0	0	0	1	0	0	0	0
September	4·4	0	1	0	0	3	15	13	4	1	7	6	8	11	5	10	2	1	1	1	0	0	0	0	3	0
October	6·1	0	2	0	1	0	8	12	0	0	7	3	12	16	6	9	0	3	1	0	1	0	0	0	4	0
November.............	6·2	0	4	0	2	0	12	17	4	1	5	4	11	16	3	6	0	1	1	2	4	0	0	0	2	0
December	8·8	0	3	0	0	0	4	7	4	1	7	4	9	15	2	6	3	2	1	3	1	0	0	0	4	0
Year	5·2	0	31	1	12	6	142	167	47	16	79	63	97	141	41	89	10	25	7	23	16	4	7	3	61	1

EXTREMES FOR THE YEAR.

Highest Pressure—30·117″ at 8.30 a.m. on August 16th.
Lowest Pressure—29·615″ at 3.30 p.m. on December 26th.
Highest Temperature in Shade—95° on January 20th.
Lowest Temperature in Shade—63° on July 19th and 20th and September 2nd.

Greatest Range—20° on February 16th.
Least Range—3° on February 15th, July 4th and 29th and August 8th.
Most rain in 24 hours—6·16″ on March 19th.
Maximum Wind Velocity—40 miles per hour from E.S.E. at 1442 on April 14th.